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John Charles Kunich
Roger Williams University

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The Naked Clone

BY JOHN CHARLES KUNICH*

"Whew! What they can't do these days!"

Jiminy Cricket¹

I. INTRODUCTION

As modern science rips gaping holes in the realm of the impossible, modern law struggles to keep pace. Particularly when revolutionary advancements in science demolish ancient notions of the proper ambit of human action, the legal system has been unprepared to meet the new challenges proactively. Instead of accommodating the new realities, there are powerful people—chiefly political and religious leaders—who have

* Associate Professor of Law, Roger Williams University School of Law, Bristol, Rhode Island. B.S. 1975, M.S. 1979, University of Illinois at Chicago; J.D. 1985, Harvard Law School; LL.M. 1993, George Washington University School of Law. The author thanks his wife, Marcia Vigil, and their daughters, Christina Laurel Kunich and Julie-Kate Marva Kunich, for their love and support.

¹ In the animated film *PINOCCHIO* (Disney 1940), Jiminy Cricket uttered these words of astonishment when he witnessed the Blue Fairy bringing a wooden puppet, Pinocchio, to life. Despite persistent rumors, there is no credible evidence that Pinocchio himself was a clone of his maker, Geppetto.

tried to bend the law into a reactive, even reactionary, force in the path of full exploration of the inchoate terrain of the freshly possible.

Some of the fuel igniting the legal opposition to scientific forays into the frontiers of imagination is a strong primeval sense that people should not be allowed to "play God." This belief has been both explicitly and implicitly at the core of much of the resistance to genetic engineering of crop plants and domesticated animals.² Fundamentally, the idea is that our ability to perform certain tasks should not be coterminous with the legality of doing so, at least with regard to modifying living things. There is a belief, usually implicitly but often explicitly religious in origin, that places some life-related areas of medical and scientific endeavor in the category of taboo, top-sacred, forbidden mystical practices reserved exclusively unto the Deity.

There is a related concept as well. Reflecting the premise embodied and graphically portrayed in numerous popular horror and science fiction novels, motion pictures, and television programs, some people are afraid that human attempts to "play God"³ or "fool Mother Nature" are fraught with overwhelming peril. The powerful message and visceral impact from these fantasies is clear: When we meddle in the secrets of life, we risk unleashing a Frankenstein's monster and visiting a horrific plague upon ourselves and our world.⁴

Legal and popular opposition to genetic engineering, formidable enough in its own right, has been dwarfed by the reaction to the prospect of cloning human beings. During the brief aftermath of the dawn of the

² See John Charles Kunich, *Mother Frankenstein, Doctor Nature, and the Environmental Law of Genetic Engineering*, 74 S. CAL. L. REV. 807, 813-17 (2001) (describing vocal, even violent, public opposition to transgenic technology despite the paucity of scientific evidence against it).

³ The specter of irresponsible scientists "playing God" was highlighted by the remarks of physicist Richard Seed when he announced his intention to open a clinic to clone humans. He stated, "In the first two chapters of the Old Testament, we learned that God made man in his own image. He intended the union of man and God. Is this union spiritual or in body? I think it is talking about the body. That we would become God in body and spirit." Mr. Seed indicated that cloning is the first step toward "indefinite life extension," in which man becomes one with God, with almost as much power as God. Despite the implausibility of a physicist undertaking to win the race to the first cloned human, Mr. Seed's remarks were quite successful in attracting the spotlight of public attention. Richard Seed, *quoted in* Gene Weingarten, *Strange Egg: A House Call to the Mysterious Doctor Seed, the Man Who Wants to Clone Humans*, WASH. POST, Jan. 25, 1998, at F1.

⁴ Kunich, *supra* note 2, at 813-17.

cloning age, governments around the world have hastily acted to place severe restrictions, including outright bans, on the cloning of human beings and/or experimentation along such lines. The United States has not been an exception. The degree of unanimity in opposition to cloning has been astounding, often uniting liberal and conservative, pro-life and pro-choice, and secular and religious people of various persuasions.

Yet science continues to advance. In November, 2001, scientists in Massachusetts announced that they succeeded in creating the world's first cloned human embryos, albeit for only a few hours and only at the stage of four to six cells.⁵ Although this privately funded research was not aimed at the actual birth of a cloned human baby, it set off a new tidal wave of impassioned calls for a comprehensive permanent federal ban on the cloning of humans.⁶ Passion has its place, but not to the exclusion of logic, reality, and the rule of law. Hence, the creation of this Article.

This Article will trace the history of modern cloning and the various legal responses, both domestic and worldwide, to recent scientific breakthroughs.⁷ It will then explore the constitutionality and the wisdom of the legal measures taken within the United States.⁸ Finally, there will be a proposal for a more appropriate, rational, and constitutionally sound course of action.⁹

II. THE FACTS OF CLONING

Popular misconceptions abound concerning cloning.¹⁰ Among the most common fallacious notions are that cloning produces exact copies of an

⁵ Rick Weiss, *First Human Embryos Are Cloned in U.S.; Private Lab Seeks to Mine Stem Cells for Research*, WASH. POST, Nov. 26, 2001, at A1 [hereinafter Weiss, *First Human Embryos*]. Researchers at Advanced Cell Technology in Worcester, Massachusetts, performed the research as a step in the process of generating embryonic stem cells that could be used to create various human tissues for therapeutic purposes. *Id.*

⁶ *Id.* See also Rick Weiss, *Mass. Firm's Disclosure Renews Cloning Debate; Bush Reiterates Support for Ban on Use of Embryos*, WASH. POST, Nov. 27, 2001, at A3 [hereinafter Weiss, *Mass. Firm's Disclosure*] (discussing reaction to the announcement from President George W. Bush, other political leaders worldwide, the Vatican, and other religious organizations).

⁷ See *infra* notes 10-78 and accompanying text.

⁸ See *infra* notes 122-218 and accompanying text.

⁹ See *infra* notes 220-23 and accompanying text.

¹⁰ See Kathryn D. Katz, *The Clonal Child: Procreative Liberty and Asexual Reproduction*, 8 ALB. L.J. SCI. & TECH. 1, 15-23 (1997) (setting forth and debunking several popular misconceptions regarding both the meaning and the application of cloning of humans).

original organism; children of cloning are in some sense less genuine or less worthy than their parents; and cloning is capable of mass-producing legions of super-powered transgenics or super-evil menaces, such as an army of Hitlers. These fallacies should be dispatched as swiftly and painlessly as possible.

The term "cloning" itself was once reserved for horticultural practices involving plants, not animals. Plants can be reproduced asexually through cuttings, for example. Today, there are several modern forms of cloning that usually consist of direct manipulation of genetic material in a process called somatic cell nuclear transfer ("SCNT"),¹¹ or dividing an embryonic cell (embryo splitting), although there are other methods of cloning as well.¹²

Embryo splitting, or blastomere separation, has not received as much media attention as SCNT, but it is important to note its existence because it implicates some of the same issues. Simply put, the process entails the manipulation of a very recently fertilized ovum, the union of egg and sperm. Within about one and a half days after fertilization, the fertilized ovum begins to divide, forming a blastomere as cell division produces two, four, eight, and then sixteen cells, becoming a blastocyst by about the four day point.¹³ Each of these very early embryonic cells is totipotent, i.e., capable of developing into an entire adult organism if separated from the other cells. To clone via embryo splitting, the blastomere is fragmented (into two, four, eight, or sixteen identical cells) and each cell is then cultured to grow into a very small multi-cell embryo which must then be implanted into an adult female of the same species.¹⁴ Each embryo is implanted into a separate adult female for gestation. Each surrogate mother then carries one of these embryos to term in the usual manner and each resultant individual would be genetically identical to the others produced from the same split blastomere.¹⁵ That is, each individual would be

¹¹ SCNT is the method employed by the Advanced Cell Technology team to generate the first cloned human embryos in late 2001. See Weiss, *First Human Embryos*, *supra* note 5.

¹² Anne Lawton, *The Frankenstein Controversy: The Constitutionality of a Federal Ban on Cloning*, 87 KY. L.J. 277, 284-89 (1999) (outlining the various types of cloning, i.e., molecular or gene cloning, cellular cloning, blastomere separation or embryo splitting, and somatic cell nuclear transplantation cloning). Of these techniques, only embryo splitting and SCNT have a potential application to the cloning of humans. *Id.*

¹³ *Id.* at 287.

¹⁴ *Id.*

¹⁵ *Id.* Embryo splitting has been employed successfully to produce normal adult sheep and cows. Additionally, researchers have cloned human embryos, mostly at the two-cell blastomere stage, but none of the resulting embryos were permitted to

genetically identical to the others split from the same early-stage embryo, but *not* identical to any existing post-birth individual.

The process of SCNT generally involves isolating deoxyribonucleic acid ("DNA")¹⁶ from the nucleus of a somatic cell (i.e., non-gamete cell, not an ovum or spermatozoa) of a donor. These somatic cells may first be deprived of nutrients for a period sufficient to halt further cellular development and bring them back to a totipotent state in which they are capable of developing into any type of cell. Then the nucleus is extracted from the donor cell and transplanted into an oocyte (egg cell) that has had its nucleus removed (enucleated). The resulting re-nucleated cell is then treated (as with a minuscule electrical pulse) in an attempt to fuse the nucleus with the remainder of the cell and activate it. If activation is successful, the cell will begin to divide, essentially in the same manner as with an ovum fertilized by a sperm cell. If the cell develops to the blastocyst (live embryo) stage, it is implanted in the uterus of a living female (a surrogate gestational mother) of the same species as the donor and recipient cells, with the goal of enabling the female to carry the embryo and eventual fetus until birth, similar to the methods widely used for in vitro fertilization.¹⁷

In current practice, this SCNT is not performed only once, but instead many times over, in an effort to overcome low success rates at the stages of blastocyst development, implantation in the female's uterus, and progress to birth. For example, in the famous case of the cloned sheep named Dolly, 277 enucleated eggs were obtained and received nuclei from adult mammary gland cells, and twenty-nine of these cells made it to the blastocyst stage (an eleven percent success rate); of those twenty-nine blastocysts that were then transferred to the uterus of thirteen female sheep (ewes), only one cloned sheep was eventually born.¹⁸ This reflected a three percent success rate among the blastocysts, and a 0.36 rate overall from start to finish.¹⁹ However, another legitimate way of interpreting the same results is that one out of thirteen ewes that received implanted cloned blastocysts eventually gave birth, a 7.7 percent success rate that compares

develop for longer than six days. *Id.* at 288. See also Kathy A. Fackelmann, *Researchers 'Clone' Human Embryos*, 144 SCI. NEWS 276 (1993); GINA KOLATA, *CLONE: THE ROAD TO DOLLY, AND THE PATH AHEAD* 175-78 (1998).

¹⁶ See Lawton, *supra* note 12, at 281-83 (providing a concise summary of the basics of the role of DNA in reproduction).

¹⁷ See NAT'L BIOETHICS ADVISORY COMM'N, *CLONING HUMAN BEINGS* 13-38 (June 1997) [hereinafter NBAC REPORT].

¹⁸ *Id.* at 22.

¹⁹ *Id.*

favorably with those achieved using in vitro fertilization during the first several years of its history.²⁰

An individual born through SCNT intervention is not, strictly speaking, genetically identical to the donor of the DNA. Although the nucleic DNA is the same as in the donor, the DNA in the mitochondria (the organelles within each cell that produce energy for cellular functions), or mDNA, is the same as the mDNA of the recipient enucleated oocyte.²¹ Thus, in SCNT, the new individual is *not* an exact copy, even genetically, of either the donor or the recipient; his or her nuclear DNA comes from the DNA donor, while the mDNA comes from the egg donor. In contrast, embryo splitting does produce an exact genotypic duplicate—both nuclear and mDNA—of the original fertilized ovum (the good old-fashioned union of egg and sperm), but not a duplicate of any pre-existing individual.

This is an important point, and it is worthwhile to emphasize certain key differences between the two major methods of cloning. Embryo splitting is technologically much easier, at present, because there is no need to perform delicate microscopic surgery on a cell, nor to “re-set” a fully differentiated somatic cell and render it totipotent so that it can develop into an entire organism. Also, as mentioned, because embryo splitting begins with a fertilized egg, it clones a new combination of DNA from a male and a female, not any preexisting individual. In no respect does embryo splitting genetically replicate any one individual, any more than does the natural process of fertilization that unites DNA from mother and father to form an offspring. Embryo splitting is essentially a process of artificially twinning (and beyond) an early stage embryo. In contrast, SCNT transfers the nuclear DNA from a somatic cell of a single post-birth individual, even an adult, and, with the exception of differences in mitochondrial DNA, reproduces the DNA of that one individual precisely.

There is nothing in either the SCNT process or embryo splitting that lends itself to mass production of clones. The re-nucleated oocytes or separated cells must each be introduced into the uterus of a living female of the same species (e.g., a female sheep in Dolly’s case), one by one, each adult female receiving one oocyte or separated cell. Although the blastomere separation (in embryo splitting) and extraction of nucleic DNA from donor somatic cells and the enucleation of recipient oocytes (in

²⁰ See LEE M. SILVER, REMAKING EDEN: CLONING AND BEYOND IN A BRAVE NEW WORLD 103-04 (1997).

²¹ See Shirley Tilghman, Address to the National Bioethics Advisory Commission (Mar. 13, 1997), transcript at <http://www.bioethics.georgetown.edu/nbac/meetings.html#1997>.

SCNT) are done in the laboratory, any resulting embryos must be carried to term by live females, one at a time. The horror-story image of hordes of Hitlers being churned out, factory style, is utterly without basis in scientific fact.

There are, however, some noteworthy questions regarding the risks of human cloning—questions that remain without completely satisfactory answers chiefly because of the scientific community's limited experience with cloning. For instance, early experiments in cloning frogs sometimes produced badly deformed clones.²² Subsequent attempts to clone cows resulted in some abnormally large calves, as much as double the usual birth weight, and some cloned calves were born with diseases and deformed hearts; eighteen to twenty percent of these died soon after birth.²³ However, more recent experiments involving cloned cows have resulted in "vigorous, healthy, and normal" calves, as healthy as conventional cows, with a pregnancy survival rate akin to those achieved by conventional livestock breeders.²⁴ But post-Dolly efforts to create cloned, transgenic sheep met with a very low success rate and, among the few lambs that survived to live outside their surrogate mothers, some weighed almost twice the normal amount.²⁵ The reasons underlying these mixed results remain unclear. One hypothesis is that the process of reactivating the donor DNA in the SCNT process sometimes damages it, possibly by activating normally-dormant

²² Francis C. Pizzulli, Note, *Asexual Reproduction and Genetic Engineering: A Constitutional Assessment of the Technology of Cloning*, 47 S. CAL. L. REV. 476, 484-85 (1974). Frogs long have been subjects for cloning and other embryological experiments because they produce thousands of relatively large, easily manipulated eggs at a time. As long ago as 1952, researchers removed the nuclei from a frog ovum and replaced it with the nucleus from an older embryonic cell, producing twenty-seven tadpoles from 197 re-nucleated eggs. Some success was also achieved using the intestines of tadpoles for the donor nuclei, but not with the differentiated cells of adult frogs. See Lawton, *supra* note 12, at 289-92.

²³ *Horizon: Dawn of the Clone Age* (BBC television broadcast, Sept. 10, 1997), transcript available at <http://www.bbc.co.uk/horizon/cloneagetran.shtml>.

²⁴ Robert Lanza, quoted in John Whitfield, *Cloned Cows in the Pink: Healthy Cows Buck the Trend for Sickly Clones*, NATURE SCI. UPDATE, Nov. 23, 2001, at <http://www.nature.com/nsu/011129/011129-1.html>. Recent researchers have claimed an eighty percent success rate among those cloned cows that survived gestation, although many embryos were spontaneously aborted during gestation. These surviving cows were reported to be as healthy and normal as any others. *Id.* See also Kimiko Inoue et al., *Faithful Expression of Imprinted Genes in Cloned Mice*, 295 SCIENCE 297 (2002).

²⁵ See Nick Thorpe, *Scientists Baffled by Oversized Sheep Clones*, SCOTSMAN, July 28, 1997, at 1.

genes that harbor deleterious mutations or undesirable phenotypic potential, or by failing properly to reactivate all necessary genes or to erase previous patterns of gene activity in the enucleated egg.²⁶

There are other questions awaiting answers that only time will deliver. One intriguing issue is whether a cloned organism will somehow “inherit” the age of its DNA donor.²⁷ Was Dolly, in effect, born fully grown, with a remaining life expectancy (derived from the adult mammary gland cell that contributed her DNA) far less than that of an ordinary newborn lamb? Or does the act of rendering the donor cells totipotent restore them to the effective age of any gamete, with a full life span in store for any eventual cloned individual? Further research and time are necessary to resolve such questions, but these important inquiries may be cut short by legal intervention.

Dolly the sheep was born on July 5, 1996, having been produced by a research team headed by Scottish embryologist Ian Wilmut at the Roslin Institute in Edinburgh.²⁸ Dolly was front-page news because this was the first time fully differentiated adult somatic cells had been used successfully to clone a mammal—although previously mammals had been cloned using early embryonic cells—thereby proving that cellular differentiation can be reversed.²⁹ Obviously, a key feature was the freedom from reliance on very early, undifferentiated embryonic cells—any normal somatic cells from a fully grown adult were now potentially the source of a clone. In the aftermath of the February 23, 1997 announcement³⁰ of this stunning advancement, there came much controversy. Presidents and the Pope, politicians and philosophers, pundits and people on the street all felt

²⁶ See Tilghman, *supra* note 21; Sharon Begley, *Little Lamb, Who Made Thee?*, NEWSWEEK, Mar. 10, 1997, at 52, 59; Helen Pearson, *Cause of Sick Clones Contested*, NATURE SCI. UPDATE, Jan. 11, 2002, at <http://www.nature.com/nsu/020107/020107-10.html>.

²⁷ See Terence Monmaney, *Prospect of Human Cloning Gives Birth to Volatile Issues*, L.A. TIMES, Mar. 2, 1997, at A1.

²⁸ See Rick Weiss, *Scottish Scientists Clone Adult Sheep; Technique's Use with Human is Feared*, WASH. POST, Feb. 24, 1997, at A1 [hereinafter Weiss, *Scottish Scientists Clone Adult Sheep*]; Ian Wilmut et al., *Viable Offspring Derived From Fetal and Adult Mammalian Cells*, 385 NATURE 810, 813 (Feb. 27, 1997).

²⁹ See Lawton, *supra* note 12, at 296. For many years, prevailing scientific thought held that the process by which cells—capable of developing into anything in the early embryonic stage—gradually differentiate into specific types of cells, was irreversible. Thus, a mature muscle cell was believed incapable of ever producing anything other than other muscle cells, whereas any blastomere cell could be made to develop into fully formed adults. *Id.*

³⁰ See Weiss, *Scottish Scientists Clone Adult Sheep*, *supra* note 28.

compelled to speak out on the latest, greatest issue of the modern age. Most famously, physicist Richard Seed declared his intention on December 5, 1997 to commence the cloning of human beings;³¹ others followed suit.³² At that point, the proverbial organic waste matter hit the oscillating air circulation device, and legal reactions began in earnest.

III. MAJOR LEGAL REACTIONS TO HUMAN CLONING

On several fronts, the legal response to Dolly and her would-be successors was of a type that one would expect if the lid to Pandora's box began to bulge ominously. The day after the Dolly announcement, then-President Clinton directed the National Bioethics Advisory Commission ("NBAC") to examine the legal and ethical aspects of cloning and to prepare recommendations to guard against the misuse of cloning technology, all within ninety days!³³ Clinton, as an interim measure, also issued a directive to all executive departments and agencies blocking the use of federal funds to clone human beings.³⁴

The NBAC Report recommended adoption of federal legislation to ban the use of SCNT cloning to create children, but it did not advocate that such a ban be made permanent.³⁵ The NBAC Report recognized that

³¹ See Richard Saltus, *Would-be Cloner Plans to Start With Himself; Says Wife Will Carry Test-tube Embryo*, BOSTON GLOBE, Sept. 6, 1998, at A6.

³² Dr. Severino Antinori of Italy is among the embryologists who have announced their intention to clone humans. See Steve Farrar, *Maverick Fertility Expert Plans First Human Clone*, SUN. TIMES (London), Oct. 25, 1998, at 1. Unlike physicist Richard Seed, who apparently lacked the requisite knowledge and means to carry out his ambitious and headline-grabbing plan, Dr. Antinori is recognized as a pioneer fertility specialist who has enabled a sixty-two-year-old woman to become pregnant. Dr. Antinori, together with a professor of reproductive physiology, Panos Zanos, has vowed to pursue human cloning in an unnamed Mediterranean nation. See Nancy Gibbs, *Baby, It's You! And You, And You . . . ; Renegade Scientists Say They Are Ready to Start Applying the Technology of Cloning to Human Beings. Can They Really Do it, and How Scary Would That Be?*, TIME, Feb. 19, 2001, at 46; Rick Weiss, *U.S. Fertility Expert Announces Efforts to Clone a Human; Consortium Led by Renegade Doctor Says It Will Help Infertile Couples*, WASH. POST, Jan. 27, 2001, at A3.

³³ NBAC REPORT, *supra* note 17, at 3.

³⁴ William J. Clinton, Memorandum on the Prohibition on Federal Funding for Cloning of Human Beings, 33 WEEKLY COMP. PRES. DOC. 281 (Mar. 4, 1997).

³⁵ NBAC REPORT, *supra* note 17, at 109. The Commission believed that a limited ban was justified because of serious questions regarding the cloning of humans, but that any such ban should have an expiration date so as not to constitute

inasmuch as SCNT cloning "could represent a means of human reproduction for some people, limitations on that choice must be made only when the societal benefits of prohibition clearly outweigh the value of maintaining the private nature of such highly personal decisions."³⁶ Furthermore, "in light of some arguably compelling cases for attempting to clone a human being" via SCNT, "the ethics of policy making must strike a balance between the values society wishes to reflect and issues of privacy and the freedom of individual choice."³⁷

Clinton took action on the NBAC Report's recommendations by sending Congress a draft piece of legislation entitled the Cloning Prohibition Act of 1997 ("CPA").³⁸ The CPA would have banned the use of nuclear transplantation technology to create a human being, whether by the private or the public sectors, through the exercise of Congress's power to regulate interstate commerce.³⁹ The Act would have also made it "unlawful for any person or other legal entity, public or private, to perform or use somatic cell nuclear transfer [SCNT] with the intent of introducing the product of that transfer into a woman's womb or in any other way creating a human being."⁴⁰ The CPA defined SCNT as "the transfer of a cell nucleus from a somatic cell into an egg from which the nucleus has been removed,"⁴¹ thereby not including embryo splitting among the forms of prohibited cloning activity, and not precluding the creation of clones from human embryonic cells. By its terms, the CPA would have expired five years after enactment.⁴²

Congress never enacted the CPA, nor did it enact any of the other anti-cloning bills put forth by various legislators.⁴³ These bills took many forms, but generally speaking, they can be grouped into two main types. Some of the bills reflected the view that research involving human embryos is fundamentally wrong and that embryos, as a form of human life, deserve protection from tampering. These bills would have banned any form of human cloning, whether it involved research alone or attempts to create an

an unnecessary infringement on citizens' right to procreate. *Id.*

³⁶ *Id.* at 107.

³⁷ *Id.*

³⁸ Cloning Prohibition Act of 1997, H.R. Doc. No. 105-97 (1997).

³⁹ *Id.* § 2(c).

⁴⁰ *Id.* § 5.

⁴¹ *Id.* § 4(c).

⁴² *Id.* § 8.

⁴³ See generally Jennifer Cannon & Michelle Haas, *The Human Cloning Prohibition Act: Did Congress Go Too Far?*, 35 HARV. J. ON LEGIS. 637 (1998).

individual from human cloning.⁴⁴ The other main type of proposed legislation was concerned with the end result of cloning, rather than research. These bills focused on banning the implantation of cloned embryos, not the creation of those embryos.⁴⁵

More recently, Congress has taken the most sweeping and far-reaching steps to date toward actual enactment of anti-cloning legislation. On September 30, 2001, the House of Representatives passed the Human Cloning Prohibition Act of 2001 ("HCPA")⁴⁶ by a vote of 265 to 162, with sixty-three Democrats and two Independents joining 200 Republicans in favor of the bill.⁴⁷ By a vote of 251 to 176, the House also rejected an amendment that would have allowed private companies to create cloned human embryos (but not human babies) and develop therapies from their cells.⁴⁸ The Act would outlaw the creation of cloned human embryos for any purpose, whether to make cloned babies or to produce potentially therapeutic stem cells, and would ban the importation of any medical treatments created abroad from cloned human embryo cells.⁴⁹ This action followed the lead of President George W. Bush and his Administration; the Administration announced on June 20, 2001 that it favored the most far-reaching of several competing bills to criminalize the cloning of humans.⁵⁰

⁴⁴ See, e.g., The Bond Act, S. 368, 105th Cong. § 1(a) (1997); Human Cloning Research Prohibition Act, H.R. 922, 105th Cong. § 2 (1997); Human Cloning Prohibition Act, H.R. 923, 105th Cong. (1997); Human Cloning Prohibition Act of 1998, S. 1599, 105th Cong. (1998); and the Human Cloning Prohibition Act, S. 1601, 105th Cong. (1998). See also Lawton, *supra* note 12, at 304-10.

⁴⁵ See, e.g., both versions of the Prohibition on Cloning of Human Beings Act of 1998, S. 1602, 105th Cong. (1998); S. 1611, 105th Cong. (1998). The CPA would also fall within this category. See also Lawton, *supra* note 12, at 310-11.

⁴⁶ Human Cloning Prohibition Act of 2001, H.R. 2505, 107th Cong. (2001).

⁴⁷ See Rick Weiss & Juliet Eilperin, *House Votes Broad Ban On Cloning*, WASH. POST, Aug. 1, 2001, at A1.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ See Rick Weiss, *Bush Backs Broad Ban on Human Cloning; Prohibition Would Cover Embryos for Research*, WASH. POST, June 21, 2001, at A1. Among the alternative anti-cloning bills introduced during the 107th Congress were H.R. 1608, H.R. 1644, and S. 790. In furtherance of this policy direction, President Bush named seventeen individuals to serve on a new President's Council on Bioethics on January 16, 2002. The Council made its recommendations concerning a ban on the cloning of humans in July 2002, advocating a total, permanent ban on reproductive cloning and, in a deeply divided opinion, recommending allowance for some therapeutic cloning. See Statement by White House Press Secretary, President Names Members of Bioethics Council (Jan. 22, 2002), at <http://www.>

The HCPA defines human cloning as:

[H]uman asexual reproduction, accomplished by introducing nuclear material from one or more human somatic cells into a fertilized or unfertilized oocyte whose nuclear material has been removed or inactivated so as to produce a living organism (at any stage of development) that is genetically virtually identical to an existing or previously existing human organism.⁵¹

This definition appears to describe the SCNT, but not embryo splitting techniques of cloning. However, in contrast to some of the earlier bills we have mentioned, and contrary to the recommendations in the NBAC Report, the HCPA is a permanent ban with no expiration date.⁵²

The HCPA would make it:

[U]nlawful for any person or entity, public or private, in or affecting interstate commerce, knowingly—

- (1) to perform or attempt to perform human cloning;
- (2) to participate in an attempt to perform human cloning; or
- (3) to ship or receive for any purpose an embryo produced by human cloning or any product derived from such embryo.⁵³

It would also prohibit “any person or entity, public or private, knowingly to import for any purpose an embryo produced by human cloning, or any product derived from such embryo.”⁵⁴ Violations are punishable by imprisonment for up to ten years, or a fine, or both.⁵⁵ In addition, civil penalties are available in the case of a violation that involves the “derivation of a pecuniary gain.”⁵⁶ Such civil penalties are set at a minimum fine

whitehouse.gov/news/releases/2002/01/20020116-9.html. It was initially anticipated by some observers that the Council would issue advice consistent with the well-known views of President Bush but a narrow majority of the Council split from the President in recommending less than a complete ban on therapeutic cloning. See Arthur Caplan, Opinion, *A Council of Clones*, MSNBC (Jan. 17, 2002), at <http://www.msnbc.com/news/689297.asp>. See Human Cloning and Human Dignity: An Ethical Inquiry, at <http://www.bioethics.gov/cloningreport/>.

⁵¹ H.R. 2505, § 301(1).

⁵² *Id.*

⁵³ *Id.* § 302(a)(1)-(3).

⁵⁴ *Id.* § 302(b).

⁵⁵ *Id.* § 302(c)(1).

⁵⁶ *Id.* § 302(c)(2).

of \$1,000,000, with a ceiling of “not more than an amount equal to the amount of the gross gain multiplied by two, if that amount is greater than \$1,000,000.”⁵⁷

In terms of possible restrictions on scientific research, the HCPA provides that “[n]othing in this section restricts areas of scientific research not specifically prohibited by this section, including research in the use of nuclear transfer or other cloning techniques to produce molecules, DNA, cells other than human embryos, tissues, organs, plants, or animals other than humans.”⁵⁸

The Senate debated anti-cloning legislation during the early months of 2002. Senator Sam Brownback of Kansas led the efforts to pass a comprehensive ban identical to the House version of HCPA.⁵⁹ There was also a major competing bill, championed by Senator Diane Feinstein of California, that would have banned reproductive cloning while allowing some forms of therapeutic cloning.⁶⁰ However, neither bill was ever voted on by the Senate.⁶¹

Even absent such new federal legislation, the Food and Drug Administration (“FDA”) asserted that it has the authority to regulate cloning and claimed that FDA approval is required prior to any attempt to clone a human being within the United States.⁶² The FDA based this claim on its guidelines for biological products that contain cells substantially altered through “more than minimal” manipulation.⁶³ This is, at best, a tenuous link to cloning, and the FDA may be overreaching.⁶⁴

⁵⁷ *Id.*

⁵⁸ *Id.* § 302(d).

⁵⁹ Weiss & Eilperin, *supra* note 47.

⁶⁰ *Senators’ Bill Details Rules on Cloning Research*, WASH. POST, June 6, 2002, at A3.

⁶¹ *Drug Makers Grapple With Genetic, Cellular Therapies*, Food & Drug Letter, Issue No. 656, 2002 WL 12321193 (Aug. 2, 2002).

⁶² Rick Weiss, *Human Clone Research Will Be Regulated; FDA Asserts It Has Statutory Authority to Regulate Attempts at Human Cloning*, WASH. POST, Jan. 20, 1998, at A1. See generally Christine Willgoos, *FDA Regulation: An Answer to the Questions of Human Cloning and Germline Gene Therapy*, 27 AM. J.L. & MED. 101 (2001).

⁶³ FDA, PROPOSED APPROACH TO REGULATION OF CELLULAR AND TISSUE-BASED PRODUCTS 6-7, 10 (Feb. 28, 1997), at <http://www.fda.gov/cber/gdls/celltissue.pdf>.

⁶⁴ See Elizabeth C. Price, *Does the FDA Have Authority to Regulate Human Cloning?*, 11 HARV. J.L. & TECH. 619 (1998) (maintaining that the FDA lacks jurisdiction to regulate cloning as a “drug,” “medical device,” or “biological product”); Willgoos, *supra* note 62, at 119-22. See also Rick Weiss, *Legal Barriers to Human Cloning May Not Hold Up*, WASH. POST, May 23, 2001, at A1.

Under the Public Health Service Act, a “biological product” is defined as, *inter alia*, a “virus, therapeutic serum, toxin, antitoxin, vaccine, blood, blood component or derivative . . . or analogous product.”⁶⁵ Before the FDA could regulate cloned human embryos under this definition, they would have to be deemed an “analogous product,” presumably one used to treat the disease of infertility. The definition appears on its face to be designed to address entities that are either obviously non-human or only a bodily component, things very different from human embryos.⁶⁶ And the equation of human beings, or human embryos, with products is itself one of the bases for anti-cloning arguments, as we shall see below, and thus it would be questionable for governmental adoption of this concept to form the foundation for federal regulation of cloning. Official government commodification of human beings, in the process of defending people from the supposed indignity of being commodified by cloning, is at least one layer of irony beyond the straight-face test.

The FDA has, in essence, developed a creative and decidedly unconventional definition of a key term, “biological product,” for the express purpose of conferring regulatory jurisdiction upon itself. This was evidently an attempt to step into the void wherein no administrative agency had clear authority to regulate the cloning of humans. If nature abhors a vacuum, bureaucrats abhor it more. This bold assertion of authority, where none would normally exist, is akin to the manner in which the Environmental Protection Agency (“EPA”) claimed the power to regulate genetically modified organisms as either chemical substances or entities with pesticidal properties under the Toxic Substances Control Act and the Federal Insecticide, Fungicide, and Rodenticide Act.⁶⁷

Some state legislatures have already enacted cloning legislation, and in this regard, have been ahead of the United States Congress. California was the first,⁶⁸ followed by Rhode Island,⁶⁹ Michigan,⁷⁰ and

⁶⁵ Public Health Service Act, 42 U.S.C. § 262(i) (2002).

⁶⁶ See Gregory J. Rokosz, *Human Cloning: Is the Reach of FDA Authority Too Far a Stretch?*, 30 SETON HALL L. REV. 464, 498 (2000).

⁶⁷ See generally Kunich, *supra* note 2.

⁶⁸ California enacted legislation on October 4, 1997, that placed a five-year moratorium on cloning of humans via SCNT using adult differentiated cells as the donors. CAL. HEALTH & SAFETY CODE § 24185 (West 2002).

⁶⁹ Rhode Island placed an initial five-year moratorium on cloning of humans by either SCNT (with cells from either embryos or adults as donors) or embryo splitting. R.I. GEN. LAWS §§ 23-16.4-1 to 4-4 (1998). This sunset provision was recently extended until July 7, 2010. *Id.* § 23-16-4.4 (2002).

⁷⁰ Michigan banned human cloning outright on June 3, 1998, with no expiration date. The Michigan ban prohibits SCNT using either embryonic or adult donor

Louisiana,⁷¹ in either banning the cloning of humans or imposing a moratorium on cloning within the state, with varying treatment of the SCNT and embryo splitting techniques. Virginia permanently banned reproductive human cloning in 2001,⁷² and Iowa has now enacted a permanent ban on both reproductive and therapeutic cloning, as of April 26, 2002.⁷³ Many other states have since taken action to at least consider similar legislation.⁷⁴

The cloning controversy has by no means been confined to the United States. For example, the 1997 Council of Europe Convention on Human Rights and Biomedicine on the Prohibition of Cloning Human Beings⁷⁵ is an international agreement that features a total prohibition on the cloning of human beings.⁷⁶ Individual nations have also taken steps to ban the

cells, but does not ban embryo splitting. MICH. COMP. LAWS ANN. § 333.16274 (West 2002).

⁷¹ The Louisiana law provides, inter alia, that “[n]o person shall clone or attempt to clone a human being.” The use of state funds for cloning is also banned. Violations are punishable by ten years in prison, a fine of up to ten million dollars, or both. The law has a sunset date of July 1, 2003. LA. REV. STAT. ANN. §§ 40:1299.36.2 - .36.6 (West 2002).

⁷² VA. CODE ANN. § 32.1-162.22 (2001).

⁷³ IOWA CODE § 707B (2002) (approved by the Governor Apr. 26, 2002). Iowa thus joins California, Rhode Island, Michigan, Louisiana, and Virginia in enacting a ban on human cloning.

⁷⁴ See Lori B. Andrews, *Is There a Right to Clone? Constitutional Challenges to Bans on Human Cloning*, 11 HARV. J.L. & TECH. 643, 645 n.13 (1998) (listing numerous states then considering anti-cloning legislation).

⁷⁵ Council of Europe, *Draft Additional Protocol to the Convention on Human Rights and Biomedicine on the Prohibition of Cloning Human Beings*, 36 I.L.M. 1415, 1417 (1997) (opened for signature Jan. 12, 1998 and entered into force Mar. 1, 2001. As of July 3, 2002, eleven nations had ratified or acceded to this convention, including: Cyprus, Czech Republic, Estonia, Georgia, Greece, Hungary, Portugal, Romania, Slovakia, Slovenia, and Spain, and eighteen more had signed but not yet ratified, including: Croatia, Denmark, Finland, France, Iceland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Moldova, Netherlands, Norway, Poland, San Marino, Sweden, Switzerland, and Turkey.). See Council of Europe, Chart of Signatures and Ratifications of a Treaty (July 3, 2002), at <http://conventions.coe.int/Treaty/EN/cadreprincipal.htm> (provides a table of nations signing and ratifying).

⁷⁶ See generally Nati Somekh, Note, *The European Total Ban on Human Cloning: An Analysis of the Council of Europe's Actions in Prohibiting Human Cloning*, 17 B.U. INT'L L.J. 397 (1999); Adam Greene, Note, *The World After Dolly: International Regulation of Human Cloning*, 33 GEO. WASH. INT'L L. REV. 341 (2001).

cloning of humans.⁷⁷ And, in late February, 2002, the United States extended its anti-cloning campaign to the United Nations, proposing a “global and comprehensive ban” on the cloning of humans and on “all experimentation involving human embryos.”⁷⁸

IV. JUSTIFICATIONS ADVANCED FOR ANTI-CLONING LEGAL MEASURES

There is not a shortage of arguments in favor of banning or drastically restricting efforts to clone human beings. This is one of those subjects on which virtually everyone appears to have an opinion—often a strongly held opinion—the arguments have taken various forms, blending together and resisting strict compartmentalization. The anti-cloning arguments are summarized below and attempts at categorization have been made for the sake of facilitating analysis.

A. Religious, Moral, and Ethical Grounds

Many of the reasons marshaled in opposition to cloning of humans, or to experimentation on and killing of human embryos, are directly rooted in religious, ethical, or moral beliefs that this is just something people should not do. Whether couched in terms to the effect that such cloning is tantamount to “trying to play God” and should be reserved for God alone,⁷⁹ or phrased in less overtly religious language,⁸⁰ this type of argument represents deep personal convictions. The people who hold these beliefs are

⁷⁷ See, e.g., Mark Henderson et al., *Emergency Laws to Ban Human Cloning*, TIMES (London), Nov. 16, 2001 (describing British legislative reaction to a judicial decision that exposed a gap in their previous anti-cloning law, the 1990 Human Fertilisation and Embryology Act). Japan has also banned SCNT cloning of humans. See *Ministry Bans Cloning Technology for Humans*, DAILY YOMIURI (Japan), July 29, 1998, at 2.

⁷⁸ Colum Lynch, *U.S. Seeks to Extend Ban on Cloning*, WASH. POST, Feb. 27, 2002, at A8. The U.N. General Assembly is scheduled to decide in August, 2002, whether to begin negotiations on a treaty along these lines. *Id.*

⁷⁹ See, e.g., *To Clone or Not To Clone*, CHRISTIAN CENTURY, Mar. 19-26, 1997, at 286 (quoting President Clinton’s warning in an executive order issued to prohibit the use of federal research funds for human cloning research).

⁸⁰ See, e.g., Catholic Med. Ass’n, *Human Cloning: Position Paper of the Catholic Medical Association*, reprinted in 15 ISSUES L. & MED. 323, 323-24 (2000) (describing the cloning of human beings as a “violation of the natural moral law”); Leon R. Kass, *The Wisdom of Repugnance*, NEW REPUBLIC, June 2, 1997, at 17 (detailing the ethical case against the cloning of humans).

convinced of the fundamental correctness of their position, and both the people and the sincerity of their beliefs are entitled to great respect.

To some degree, adherents of this view also tend to be pro-life and against liberalized abortion-on-demand. It may be more accurate to state that, among the pro-life group, there is also overwhelming opposition to cloning humans. This is because anti-cloning sentiment is much more widespread than even the basic pro-life position, which itself is held by a substantial portion of the populace, depending on exactly how the issue is framed. Many pro-choice advocates are also adamantly opposed to cloning, on the basis of the perceived degradation and exploitation of human beings for unwise or inappropriate purposes.

On the pro-life side of the anti-cloning coalition, people who believe that it is wrong for persons intentionally to end the life of an unborn human fetus under many or all circumstances also often believe it is wrong, or at least not constitutionally protected, to create human life using “unnatural” or “artificial” means. For some, this belief extends to in vitro fertilization as well.⁸¹ In part, this objection to in vitro fertilization stems from the fact that there are inevitably some failures along the way, with some number—even sizable numbers—of human embryos created and eventually discarded during the process.

At present, this point applies with much greater force to cloning than to in vitro fertilization. As previously mentioned, cloning by SCNT is still a process with a very low success rate, even when cloning frogs or sheep. Until and unless major advancements are made in the technology and technique, it is reasonable to expect that there will be vast numbers of failures, i.e., discarded embryos, for every cloned individual that survives, whether frog, sheep, or human being. Of course, where the objective is not a successful pregnancy and live birth but rather medical or scientific research, as in therapeutic cloning, this problem is greatly intensified.

Experimentation on human beings has long been considered unethical, absent the voluntary consent of a subject with legal capacity to give consent.⁸² Moreover, experimentation is not ethical where it would be likely to result in injury, disability, or death of the experimental subject.⁸³ Some commentators see these principles as relating to the dignity and rights

⁸¹ See Clarke D. Forsythe, *Legal Perspectives On Cloning: Human Cloning and the Constitution*, 32 VAL. U. L. REV. 469, 539-40 (1998).

⁸² See *United States v. Brandt (The Medical Case)*, 2 Trials of War Criminals Before the Nuremberg Military Tribunals Under Control Council Law No. 10, at 181-82 (1949).

⁸³ 5 ENCYCLOPEDIA OF BIOETHICS 2763-64 (Warren T. Reich ed., 1995).

of unborn humans, and thus powerful arguments in favor of anti-cloning legislation.⁸⁴

Among the core problems with this loosely-knit web of objections is the inexorable tendency of opposition to cloning to lead to opposition to other things. To the extent anti-cloning sentiment is rooted in religious doctrine, there are important First Amendment concerns implicated in any marriage of religion and legal action. If religion-based belief is permitted to manifest itself in a ban of cloning, then similar arguments could next target in vitro fertilization, stem cell research, or abortion. As we shall see later in this Article, there are doctrinal strands that tie cloning to each of these, and more.

B. Legal Grounds

Some commentators have posited legal objections to the cloning of humans. These concerns focus on questions regarding the rights of the child of cloning, issues concerning inheritance and parenthood, and related problems.⁸⁵ These are ancillary to the other anti-cloning arguments and are probably insufficient in isolation to justify such legislation. However, because they could form a portion of a broader, more comprehensive justification for a ban, it is appropriate to discuss them briefly here.

For example, legislatures might assert that a cloning ban is necessary to prevent physical harm to the children of cloning. If these children are at greater risk of birth defects, including deformities and susceptibility to illness and early death, this could be adduced as evidence in favor of a ban on cloning.⁸⁶ Clearly, there is a legitimate public policy cause for concern if the cloning of humans is accompanied by a high probability of serious abnormalities, but this objection is persuasive only insofar as it argues for temporary restrictions and narrowly tailored regulations while further animal experiments are conducted. Low success rates in the union of DNA and an enucleated egg, the implantation of the resulting embryo in a woman's uterus, and the carrying of the fetus to term without miscarriage could all form an additional basis for restrictions or temporary moratoria, albeit with less legal justification, for reasons to be discussed later.

⁸⁴ See, e.g., Forsythe, *supra* note 81, at 532-34.

⁸⁵ See, e.g., Mona S. Amer, *Breaking the Mold: Human Embryo Cloning and Its Implications for a Right to Individuality*, 43 UCLA L. REV. 1659, 1684-88 (1996).

⁸⁶ Note, *Human Cloning and Substantive Due Process*, 111 HARV. L. REV. 2348, 2362-63 (1998); Andrews, *supra* note 74, at 649-52.

Another legal concern involves potential confusion as to family lineage and kinship, and the impact such confusion could have on the rights and duties implicated in the familial relationship within the legal system. Would the donor of the nuclear DNA be recognized as a relative of the cloned child, to a greater extent or to the same extent as the donor of the enucleated egg (which contributes the mDNA as well as cytoplasm to the child of cloning)? Does the contribution of nuclear DNA or enucleated egg by a third-party, i.e., someone not part of the family unit within which the child will be reared, entitle the contributor to any rights or bind the contributor with any responsibilities regarding the child? These issues are relevant to varying degrees depending on who is donating the nuclear DNA and who is donating the enucleated egg.

Some scenarios present a negligible risk of legal dispute as to lineage and kinship, as where parents clone their own child, using the child as the donor of the nuclear DNA and the mother as the source of the enucleated egg. The child born through these means would still have the same biological parents as the first child, with no outside source of DNA or mDNA.⁸⁷ In other situations, as where a person clones himself or herself, perhaps as a method of reproduction for a single person or an infertile or same-sex couple, or where a couple wishes to clone an unrelated third party, the kinship issues can be somewhat more complex. Still, the law has proved to be robust to the challenge of sorting out gestational, genetic, and social parentage in modern varieties of assisted reproduction, such as gamete donation and surrogate motherhood. Cloning is not fundamentally distinguishable from—and may in some respects be *superior* to—other forms of assisted reproduction.⁸⁸ Artificial insemination, in vitro fertiliza-

⁸⁷ See John A. Robertson, *Liberty, Identity, and Human Cloning*, 76 TEX. L. REV. 1371, 1393-94 (1998).

⁸⁸ *Id.* at 1424-30. For example, when cloning is utilized, there should generally be no question as to the identity and legal rights and duties of the DNA donor. This is not always the case with other forms of assisted reproduction, in which gametes may be obtained from anonymous and extra-familial sources. See, e.g., *Jaycee B. v. Superior Ct.*, 49 Cal. Rptr. 2d 694, 696 (4th Dist. 1996) (dealing with an arrangement by which a married couple hired a surrogate mother to carry and give birth to a baby developed from an embryo created from the ovum and spermatozoa of anonymous donors, and the divorce of the married couple prior to the child's birth); *Thomas S. v. Robin Y.*, 618 N.Y.S.2d 356, 357-62 (App. Div. 1994) (order of filiation granted to a homosexual man who fathered a daughter by donating spermatozoa to a lesbian couple for artificial insemination). See WILLIAM N. ESKRIDGE, JR. & NAN D. HUNTER, *SEXUALITY, GENDER, AND THE LAW* 827 (1997) (discussing some of the complex parentage problems spawned by the use of artificial insemination and in vitro fertilization).

tion, gamete intrafallopian transfer, and zygote intrafallopian transfer all have become familiar means of assisted reproduction, each with technological and legal advantages and disadvantages,⁸⁹ cloning would not be an exception.

C. *Slippery Slope Grounds*

The prospect of cloning humans seems to have special power to provoke slippery slope arguments in opposition. Largely because of rampant ignorance concerning the facts of life as applied to cloning, an array of horrific consequences has been posited as a possible, if not probable, outgrowth of legal cloning of humans.

An oft-repeated concern is that cloning could be employed to mass-produce people, particularly those with tendencies toward violence and evil, such as an army of Hitlers.⁹⁰ The (false) assumption, fed by the fantasies of popular entertainments, is that cloning allows for an easy, assembly-line type of replication of people, almost akin to running off limitless copies on a photocopier machine.⁹¹ A corollary of this combines anti-cloning opinion with fear of modern genetic engineering to yield the horrific prospect of legions of transgenically enhanced super-warriors or arch-terrorists.⁹² Suffice it to say that the genes have not as yet been identified that specifically code for such peculiar traits as: (1) extraordinary susceptibility to brainwashing and submission to an evil super villain's commands; (2) affinity for self-destruction; (3) skill in modern weapon usage; (4) Hercules-like physical strength; and (5) a Bruce Lee degree of adeptness in martial arts. Maybe someday.

Given the extreme examples of eugenics during the twentieth century, some fear that cloning would be widely used to select for, and select against, particular genetic traits, possibly through governmental coercion. If modern societies produced compulsory sterilization, what would prevent

⁸⁹ See ROBERT BLANK & JANNA C. MERRICK, HUMAN REPRODUCTION, EMERGING TECHNOLOGIES, AND CONFLICTING RIGHTS 86-88 (1995); Katz, *supra* note 10, at 23-27; Elizabeth A. Pitrolo, Comment, *The Birds, the Bees, and the Deep Freeze: Is There International Consensus in the Debate Over Assisted Reproductive Technologies?*, 19 Hous. J. INT'L L. 147, 168-204 (1996).

⁹⁰ See Michael A. Goldman, *Human Cloning: Science Fact and Fiction*, 8 S. CAL. INTERDISC. L.J. 103, 103 (1998).

⁹¹ Robertson, *supra* note 87, at 1418.

⁹² See, e.g., ALDOUS HUXLEY, *BRAVE NEW WORLD* 10-12 (1932) (The novel describes the transgenic subservient class of citizens created by despots to do their bidding.).

them from harnessing cloning to generate the genotypes and phenotypes they favor?⁹³

Another objection posits that legal cloning would usher in an era in which cloning becomes a serious competitor to, if not the predominant form of, human reproduction. Under what might be termed the "sex is dead" scenario, children of cloning would become so numerous relative to the children produced through traditional means that the human gene pool would be impoverished. Certain genotypes would be replicated repeatedly, swamping the gene pool with sameness. Genetic diversity would diminish, leaving the human species with less resources for natural selection and evolution, and thus less capable of evolving resistance to disease, changed environmental factors, or other eventualities calling for a deep and varied reservoir of genetic raw materials.⁹⁴ Furthermore, society itself would become less diverse, less interesting, and less genuine as people were replicated from a limited number of popular templates.⁹⁵ The "sex is dead" theory and its prophecies that the gene pool will be drained might be persuasive but for the fact that, as compared to conventional coital reproduction, cloning will always be: (1) much more expensive; (2) much riskier; and (3) much less fun.

D. Psycho-Social Grounds

Several potential psycho-social problems have been adumbrated, centering around the difficulties a child of cloning might encounter.⁹⁶ In

⁹³ See PHILIP R. REILLY, *THE SURGICAL SOLUTION: A HISTORY OF INVOLUNTARY STERILIZATION IN THE UNITED STATES* 94, 105-10 (1991) (discussing the involuntary sterilization of some 60,000 people in the United States, 1907-1963, and approximately 3,500,000 in Nazi Germany, 1933-1945).

⁹⁴ See George B. Johnson, Editorial, *What Rights Should a Cloned Human Have?*, ST. LOUIS POST-DISPATCH, Mar. 20, 1997, at B7; Pizzulli, *supra* note 22, at 560.

⁹⁵ Pizzulli, *supra* note 22, at 559-60. It has become nearly obligatory in the scholarly literature on cloning to mention Michael Jordan as a likely candidate for repeated cloning. See, e.g., Andrews, *supra* note 74, at 648; Robertson, *supra* note 87, at 1384. Ever the contrarian, I might offer instead the possibility of cloning baseball superstar and new single-season home run champion Barry Bonds, although old-fashioned sexual reproduction has evidently been quite adequate to allow him to surpass, beyond anyone's wildest dreams, even the stellar major league record established by his father, Bobby Bonds. See also the similar examples of Ken Griffey Jr. and Sr., Bret and Bob Boone, and other cases in which the non-cloned sons of major league baseball players far surpassed their fathers' outstanding achievements.

⁹⁶ See Andrews, *supra* note 74, at 652-56 (hypothesizing several psychological drawbacks related to cloning and crediting their credibility); Vernon J. Ehlers, *The Case Against Human Cloning*, 27 HOFSTRA L. REV. 523, 526-27 (1999).

that there has never been a successful cloning of a human being, one is entirely free and without fear of definitive contrary evidence to postulate a host of psycho-social challenges that might be collectively denominated post-cloning syndrome ("PCS").

Persons afflicted with PCS might suffer from a reduced sense of self, or at least a lessened sense of individuality or personal autonomy.⁹⁷ A sentient human being who learns at some stage of life that he or she was launched on the path toward birth by SCNT rather than good old-fashioned fertilization might feel like a product rather than a person. There would be the knowledge that someone else has the identical complement of nuclear DNA (albeit not mtDNA), and perhaps that others also possess the exact same set of DNA in their nuclei. For these people, there could be psychological trauma in knowing that they are not completely unique in the genetic composition of their nuclei.⁹⁸

A related aspect of PCS might be the harm to a person's psyche from knowing that he or she has the same nuclear DNA as a particular individual and presumably, is foreordained to the same genetically-determined path in life. Assuming the identity of the DNA donor is known to the child of cloning, he or she would be able to view the future to some extent by looking at the donor. Predisposition to a variety of genetically based medical conditions, adult physical appearance, aging patterns, intellectual capacity, and other important phenotypic manifestations of a person's genetic material would be on display. Perhaps foreknowledge of some of these attributes would be disturbing, assuming that the DNA donor represents a future that is frightening or unappealing to the child of cloning.⁹⁹

The opposite problem could eventuate when a person is cloned, specifically to manifest a particular trait, and then he or she does not fulfill this destiny, whether through injury, illness, or other of life's vicissitudes. The person could experience pressure to conform to the desired life template, and suffer feelings of rejection and inadequacy when he or she does not.¹⁰⁰ Particularly where the person is aware that he or she was intended specifically to excel at some special field of endeavor, there may

⁹⁷ NBAC REPORT, *supra* note 17, at ii, 66-68.

⁹⁸ Robertson, *supra* note 87, at 1411-18 (describing and analyzing these objections to cloning and concluding that they are not likely to constitute sufficient justification for a ban).

⁹⁹ See generally Lori B. Andrews, *Prenatal Screening and the Culture of Motherhood*, 47 HASTINGS L.J. 967 (1996) (examining evidence that access to genetic screening information about oneself can be psychologically harmful to a person).

¹⁰⁰ Andrews, *supra* note 74, at 653.

be a sense of being, in essence, a defective product, and parents or siblings might treat the person as such.¹⁰¹

It is possible that PCS could also entail psychological distress generated by the treatment the child of cloning receives from others in society. It may be that these children would be the target of insults and cruel jokes, and that some “normal” people would shun them or otherwise make them feel unwelcome. They might be ostracized because of their genetic origin. Such unfair and discriminatory actions might be especially common, and especially damaging, during the childhood years when youthful people can be prone to single out others who are perceived as different. This, of course, presupposes that people beyond the immediate family would be aware that a particular child began life through the cloning process. But this would not be the case unless someone in the family chose to reveal the information publicly—there would be no way someone could discern a clonal origin merely by looking at a person. Even striking physical similarities between the DNA donor and the child of cloning—the “spitting image” or “chip off the old block” phenomenon—could very plausibly be attributed to traditional family resemblance, just as has always been recognized. Public disclosure of a clonal origin would be a matter within the discretion of the family, absent an ethical breach by a health care provider with knowledge of the situation or DNA analysis.

It also has been suggested, paradoxically, that cloning would at once diminish parental ties and expand parental control over the genetic destiny of children. The NBAC Report included a “concern about a degradation in the quality of parenting and family life,” with impersonalization of the parent-child relationship and children being only conditionally accepted by their parents, because of the supposed manufacturing-like aspects of the cloning process.¹⁰² This view holds that children of cloning might be viewed as manufactured products or possessions, not as people, with less than usual tolerance of deviations from parental expectations or, to use the language of manufacturing and contracts, specifications.¹⁰³ It also decries the “total parental control over the genetic destiny of the child” that cloning offers.¹⁰⁴

V. WHY WOULD ANYONE WANT TO CLONE A HUMAN?

Given this rather extensive list of arguments against the cloning of humans, one might presume that it is chiefly a dead issue—few would want

¹⁰¹ Willgoos, *supra* note 62, at 107-08.

¹⁰² NBAC REPORT, *supra* note 17, at ii.

¹⁰³ Forsythe, *supra* note 81, at 536-39.

¹⁰⁴ *Id.* at 536.

to clone a person if these arguments are valid.¹⁰⁵ Yet cloning is very much a live issue, both figuratively and literally.

Initially, of course, some people are interested in becoming the first successfully to clone a human being, or the first person to be cloned. Whether driven by scientific zeal, a desire for fame and a place in history, the yearning for riches, or some combination thereof, there is a special allure associated with being the first to cross a chasm of this magnitude. But this impetus would quickly dissipate once the chasm is conquered. Few remember the second or third person to master any significant scientific or technological challenge. So let us consider what other reasons might persist beyond the pioneering phase of human clonal research.

There may be a desire by family members to clone a beloved dying relative, especially a child. The impetus to clone would be particularly strong where the family is unable to have another child through traditional procreation, but it would be a natural reaction of loving parents to the impending death of any child under any circumstances. Parents of a child critically injured in an accident or attack, or stricken with a devastating communicable disease, may have a powerful urge for something approaching a second chance. By cloning the dying child, the parents could feel that they are in some measure providing their child with a second chance at a full life. Simultaneously, they would afford themselves a second chance to experience parenting and relating to their child, this time for many more years. Obviously, the new child would have a new brain, with no recollection of any experiences from the life of the first child, but the genetic identity of the two would be a powerful factor moving grief-stricken parents toward the cloning decision.

Couples or individuals may also want to use cloning as a means of having children, apart from any desire to replace a lost loved one. Presumably, cloning would be an attractive option mostly in situations that do not present many alternatives; it would be a rarity, not the norm.¹⁰⁶ Given the prohibitively high expense and low success rate likely to be associated with cloning for the foreseeable future, people are not apt to attempt cloning unless it is the only way to have, as it were, "children of their own." If there is a social stigma that arises against cloning, that would

¹⁰⁵ See Katz, *supra* note 10, at 12-13; Dorothy C. Wertz, *Twenty-one Arguments Against Human Cloning, and Their Responses*, THE GENE LETTER (Aug. 1, 1998), at <http://www.geneletter.com/archives/twentyonearguments.html> (listing numerous arguments in opposition to the cloning of humans and offering rebuttals to each).

¹⁰⁶ See Lee M. Silver, *Popular Cloning Versus Scientific Cloning in Ethical Debates*, 4 N.Y.U. J. LEGIS. & PUB. POL'Y 47, 53 (2000/2001).

be a further disincentive. Prospective parents would probably exhaust their options regarding conventional procreation, adoption, and in vitro fertilization before turning to cloning, absent a strong personal philosophical drive to explore a new reproductive frontier.

One exception might be in the case of a couple, one member of whom is a carrier of a genetic disease, and who do not want to accept the risk of transmitting the disease or the gene to their children.¹⁰⁷ They could clone the member who lacks the disease-linked gene and thus ensure that their child will not possess the undesired gene, or, if they already have a child who is free of the gene, they could clone that child.¹⁰⁸ Situations in which the combination of two recessive copies of a gene that were each carried unexpressed by the two parents constitute one of the most common classes of genetic disorders, encompassing serious conditions such as sickle cell anemia, cystic fibrosis, Tay-Sachs disease, and PKU, and cloning would greatly reduce the incidence of these harms.¹⁰⁹ Cloning would also significantly lower the risk of the other most prevalent variety of genetic abnormalities, i.e., Down syndrome (the presence of an abnormal number of chromosomes).¹¹⁰ Thus, in contradistinction to the fears that cloning would be unacceptably dangerous, with myriad dead or deformed embryos and babies among the casualties, cloning may actually be safer and less risky than even coital reproduction under some circumstances.¹¹¹

Another exception could involve couples, at least one member of which cannot produce viable gametes. Cloning would enable these couples to refrain from relying on anonymous donors of sperm (as in a sperm bank), or egg donors from outside the couple, and allow the two to use only the genetic material of one member of the couple. Moreover, if the male contributes the DNA and the female the enucleated egg, the resulting child would have the father's nuclear DNA and the mother's mDNA, permitting both members to contribute to the child's genetic makeup. Likewise, both members of lesbian couples could contribute to their child's genetic structure by having one woman donate the DNA and the other the enucleated egg.

Infertile heterosexual couples, single persons, and homosexual life partners¹¹² would comprise the majority of people exploring the cloning

¹⁰⁷ NBAC REPORT, *supra* note 17, at 78-79.

¹⁰⁸ Andrews, *supra* note 74, at 647-48; Robertson, *supra* note 87, at 1379.

¹⁰⁹ See KOLATA, *supra* note 15, at 239-42; SILVER, *supra* note 20, at 103-04.

¹¹⁰ See SILVER, *supra* note 20, at 103-04.

¹¹¹ See Katz, *supra* note 10, at 12.

¹¹² Some gay activists, such as the Clone Rights United Front, have protested anti-cloning legislation, seeing cloning as an opportunity for same-sex couples to experience the procreative process. See Anita Manning, *Pressing a "Right" to*

option, just as they do for the more well-established alternatives to conventional reproduction. The same basic yearnings that drive people to adopt, to become foster parents, to employ surrogate mothers, or to attempt in vitro fertilization, would apply to the decision to clone. But this is not to say that all the alternatives have identical appeal to all people. Many choose to adopt despite an ability to procreate, because of a desire to help a child in need who has already been born, as my wife and I have done with our own daughter from the Peoples' Republic of China. In vitro fertilization is attractive to people who wish to have the genes of both members of the couple represented in the couple's children, but who cannot do so without the aid of this technique. Cloning would be a way for single persons not in a coupled relationship to contribute their genes to their own children, or for one member of same-sex couples to do the same.¹¹³

Each of these forms of having children satisfy certain profound human needs, each in its own way. The tendency of people to prefer one means over the others may be influenced by religious beliefs, societal norms, and the importance to each person of passing one's own genes on to the next generation. This last variable is paramount for some, whether rooted in a belief in the primacy of genes as the determinants of one's life or a conviction that a child is more fully one's "own" if that child possesses the genes of the parent(s). This position can attain its fullest expression on the individual level in the case of cloning, because no one's genes, other than those of the DNA donor, will be present in the child.

Adherents of genetic determinism may offer another reason in support of the cloning of humans: this technique maximizes our ability to ensure that certain admired persons have the opportunity to transmit their genes across the generational boundary. Of course, which persons are admired is very much a personal decision in the eyes and mind of the beholder. For some, there is no doubt (presumably after long and careful study, comparison, and analysis) that the one person on earth whose genes absolutely must be replicated is, in fact, that person. Perhaps a substantial number of other people would agree in principle regarding some subset of such me-first potential cloners—Nobel laureates, Pulitzer Prize winners, and decorated

Clone Humans: Some Gays Foresee Reproduction Option, USA TODAY, Mar. 6, 1997, at 1D. Some lesbians have noted the advantage of reproduction without the direct involvement of men, including anonymous sperm donors who may have undesirable genetic traits. *Id.* See also Silver, *supra* note 106, at 54. For more information regarding the Clone Rights United Front, see Clone Rights United Front Homepage, at <http://www.clonerights.com> (last visited June 18, 2002).

¹¹³ Robertson, *supra* note 87, at 1381-82 (mentioning additional possible reasons for cloning).

heroes, for instance. In other cases, a person's very lofty view of his or her own unique merit may be shared by no one else, yet that person may be totally committed to donating genetic self-copies to the world of tomorrow.

A variant of this theme would involve not a sense of egocentric superiority so much as a desire for physical immortality. Some people, in coming to terms with their own mortality, might conclude that they possess the means to live on through cloning themselves. Either owing to a misguided misunderstanding of cloning or a powerful adherence to "genetic determinism"¹¹⁴ or "genetic essentialism,"¹¹⁵ these persons could decide to clone themselves as a form of proactive reincarnation. Such belief in the primacy of genetics may be quite misguided,¹¹⁶ but it can also be tenacious,¹¹⁷ and may lead to a cloning decision. This could be conceptualized as a contemporary manifestation of the poet's plea that we "do not go gentle into that good night" but rather "rage, rage against the dying of the light."¹¹⁸ If already terminally ill, the DNA donor might entrust the clonally-originated child to the care of a close relative or friend, with the injunction to bring up the child so as to honor and emulate the donor. Or, if the donor still enjoys sufficiently good health and the time to rear the child, the donor can personally teach the child in the manner deemed appropriate, complete with information about the donor's own family history and traditions, likes and dislikes, and various other life patterns.

Possibly some devoted followers of particular individuals might feel so strongly about their idol's value that they would be willing to pay to clone him or her or serve as a surrogate mother. This would have to be an especially potent form of devotion because of the great expense involved and the requirement of finding a willing surrogate mother to carry every SCNT embryo to term, one embryo per surrogate at a time. Presumably the consent and cooperation of the object of such hero worship would be

¹¹⁴ See NBAC REPORT, *supra* note 17, at 32.

¹¹⁵ Steve Jones, *Arguing Ethics, Forfeiting Progress*, N.Y. TIMES, Mar. 14, 1998, at A17.

¹¹⁶ See Robert Wachbroit, *Should We Cut This Out? Human Cloning Isn't as Scary as It Sounds*, WASH. POST, Mar. 2, 1997, at C1 (describing genetic determinism as "not only false, but pernicious; it invokes memories of pseudo-scientific racist and eugenic programs premised on the belief that what we value in people is entirely dependent on their genetic endowment or the color of their skin").

¹¹⁷ According to some polls, thirty to forty percent of Americans believe in genetic determinism. See Ronald Bailey, *The Twin Paradox: What Exactly is Wrong with Cloning People?*, REASON, May 1997, at 52.

¹¹⁸ DYLAN THOMAS, COLLECTED POEMS OF DYLAN THOMAS 1934-52 (1971).

essential, in order to supply the requisite DNA in a viable form. It is highly unlikely that anyone could be cloned without his or her knowledge and consent, absent the collusion of health care providers with access to living somatic cell samples.¹¹⁹

One can imagine some sinister examples, in which a modern-day despot, zealot, terrorist, or arch-criminal either attempts to create multiple self-clones or is urged to do so by disciples. Particularly charismatic, delusional, powerful, ruthless, and/or wealthy figures might be able to spearhead a successful self-cloning campaign on a limited scale. One might denominate this the Hitler Syndrome or the Osama bin Laden Plot, with the name of the ultra-villain subject to whatever current events and cultural debates are dominant. On a less ominous note, certain celebrities might enjoy an extreme strain of hero-worship in which their fans provide funds and wombs for their cloning. Sometimes, such pronounced devotion does not blossom until after the death of the idol; in these cases, cloning would be impossible unless somehow the necessary cell samples had been obtained in advance by forward-looking persons. Thus, what we might call the Elvis Option would often be impracticable, notwithstanding the posthumous devotion some celebrities attract.

Additional utilitarian motivations for cloning may exist. For example, some people might want to create a clone of themselves for the primary or secondary purpose of securing a compatible potential donor of organs such as kidneys. Because of the genetic identity of donor and child of cloning, there should be drastically diminished risks of rejection of the transplanted organ in these situations. One presumes that this use of cloning would be limited to non-essential organs, blood, and bone marrow, and that the law would never allow a living, viable, child of cloning to have his or her heart or liver harvested for the benefit of the donor. Aside from the extreme polar situation wherein a person creates a self-clone for the express purpose of killing the child of cloning and cannibalizing him or her for vital organs, and presuming both the proper normal care and education of the child and the voluntary and informed consent on the part of the child to the donation of any non-essential organs and other bodily components, this could be viewed as a legitimate reason for cloning. As an actuating motive, it lacks the emotional appeal of the naked clone scenario soon to be discussed, but it may be an understandable rationale, especially in the case of individuals with particularly acute vulnerability to certain serious medical conditions.

¹¹⁹ See Robertson, *supra* note 87, at 1446 (speculating that eventually minuscule amounts of DNA from such sources as saliva residue on postage stamps might be usable for cloning).

It is possible that cloning could also be employed to clone only specific tissues or organs, not as part of an entire free-standing post-birth organism, but as discrete and isolated entities. Indeed, in early 2002 there were some preliminary reports that researchers in Massachusetts “used cells derived from cloned cow embryos to grow kidney-like organs that function and are not rejected when implanted into adult cows.”¹²⁰ If verified and perfected, such methodology could allow the use of cloning to produce “personalized, genetically matched organs for transplantation,” or, more precisely, re-implantation into the same individual from which the organ’s DNA was originally extracted, and might dramatically reduce the need to rely on organ donors in the future.¹²¹ Similarly, cloning may be very useful in stem cell research, which could hold the key to unlocking many intractable medical problems. Such therapeutic cloning may be an enormously powerful tool for medical science.

All of the motivations discussed would necessarily entail use of the SCNT and not the embryo-splitting method of cloning. This is the case because only the SCNT technique allows the cloning of an individual who has already been born. Embryo-splitting can create multiple people with the identical genotype, but the source must be embryonic cells of a very early stage. Once an embryo develops beyond the blastomere phase and consists of more than just a few cells, embryo splitting is no longer an option—and this is certainly true for later-stage fetuses, newborns, babies, toddlers, children, adolescents, and adults. Moreover, most, if not all, of the reasons why people might want to clone do not apply to the embryo-splitting method. Rather than replicating the genes of a known person—whether self, life partner, a child, or an admired individual—the embryo-splitting technique clones an embryo, essentially making multiple children out of what ordinarily would only become one child. And an embryo, of course, is produced through the union of egg and sperm cells, with an equal genetic contribution from both mother and father, i.e., a new, unique genotype, not a replication of any one person’s genes.

Some of the aforementioned reasons for cloning humans are of broader and deeper appeal than others. Many people may empathize with bereaved parents over their desire for their dead child to live again, in a manner of speaking. There is also a poignancy in the longing of people to have

¹²⁰ Rick Weiss, *Scientists Claim an Advance in Therapeutic Cloning*, WASH. POST, Jan. 30, 2002, at A3.

¹²¹ *Id.* In addition to obviating the need to search for available organs, this technology would presumably eliminate most of the risk of rejection possible upon the transplant of organs from one genetically unique individual to another. *Id.*

children to love and nurture, despite the obstacles nature or society has placed in their path. The other goals of cloning might not be as popular, either in terms of the number of people who would be ready to implement them at their own expense and risk or in the level of approval they would attract in public opinion. Some would be unambiguously unpopular, to say the least. But this Article has established that there are reasons why people might want to clone human beings, and that these reasons are both complex and varied. This Article will now evaluate the constitutionality of legislation that would ban or severely circumscribe the cloning of humans.

VI. IS ANTI-CLONING LEGISLATION CONSTITUTIONAL?

In light of the objections to cloning, the reasons why people would want to clone, and the multiple pieces of legislation on both the state and federal level that touch on the cloning of human beings, the key question becomes whether anti-cloning laws are constitutional. Clearly, the answer to this question can only be adumbrated through a process of comparison and analogy, in that there is no case law directly on point at this early juncture in the history of human clonal activity.

I will analyze this issue primarily in terms of the Human Cloning Prohibition Act of 2001 ("HCPA") because this bill, sweeping in scope, has already been passed by the United States House of Representatives, and was actively debated, although not voted on, by the Senate during the first half of 2002. It is a complete and comprehensive ban on the SCNT method of cloning humans irrespective of purpose, and it has no sunset provisions.¹²² If the HCPA approach survives constitutional scrutiny, it is reasonable to presume that less ambitious legislative restrictions would survive as well.

I must emphasize that the following analysis is not an attempt to predict what the current Supreme Court or some future Supreme Court would actually do,¹²³ but is rather a suggestion as to what they should do, to be consistent with *stare decisis* and the rule of law. As will be explained, much of the relevant precedent rests on questionable and non-textual constitutional grounds, and has often been produced, case by case, by the narrowest possible majorities or even pluralities. The fragile coalitions that yielded these cases could be shattered if even one justice is replaced by a person of differing judicial views on such matters. In an effort to focus on legal

¹²² Human Cloning Prohibition Act of 2001, H.R. 2505, 107th Cong. (2001).

¹²³ See Katz, *supra* note 10, at 44 (noting that the Court's view of the cloning of humans, as with other issues of reproductive freedom, may be "particularly vulnerable to the vicissitudes of personnel changes of the Court").

principle and not on political maneuvering, I will not attempt to foretell the future, but only to sort through the doctrinal strands that loosely knit the jurisprudence, and see where the threads lead us.

One can hypothesize several ways in which a legal challenge to the HCPA and its state analogues might be mounted. The facts could be arrayed in a variety of patterns, depending on who was attempting to clone a human, the motives for doing so, and the specific governmental response. Indeed, the breadth of many of the anti-cloning bills and statutes invites legal challenges on multiple fronts and increases the probability that the courts will find constitutional defects. By essaying to ban all cloning of human beings regardless of reason or circumstances, the legislators have made it likely that some cases will be brought in which very earnest, sympathy-attracting people plead for redress of their grievances against a Procrustean anti-cloning legal regime. It may be that courts would hold some limited restrictions on the cloning of humans permissible, while striking down more sweeping bans. Let us examine how and why.

A. The Naked Clone Scenario and Reproductive Rights

First, we will consider the most favorable scenario for a successful legal attack on the anti-cloning laws. This is the “naked clone” situation, the name of which constitutes the title of this Article.¹²⁴ The term “naked clone” is used to highlight one particularly propitious concatenation of circumstances, in which well-meaning, loving, child-focused people are barred from cloning despite being motivated by some of the best, most altruistic, and most basic human impulses. The parents, perhaps already devastated by the terminal illness of their child, would be bereft a second time, having lost the chance to give life another chance through cloning.

¹²⁴ Throughout this Article the author attempts to use the term “child of cloning” rather than “clone” to refer to a human being who begins life through the cloning process. He believes “child of cloning” is preferable, because it emphasizes the personhood of the individual rather than the process by which he or she came into being. To call a person a “clone” is akin to calling someone conceived through in vitro fertilization an “IVF” or a “test tube.” However, when the term “naked clone” is used, he opts for the word “clone” intentionally to highlight the negative prejudices, ignorant misconceptions, and pejorative use of quasi-scientific language that have so often accompanied the debate on the cloning of humans. In actuality, if one wishes to be perfectly accurate, there is another term preferable even to “child of cloning” when referring to a child born through the cloning process. That term is “child.”

The child of cloning would be naked in the sense of being devoid of protection, stripped of legal rights, and without any refuge from the government that forbids him or her even to exist. The privacy rights of the parents and child would be subordinated to the state interests, leaving the child of cloning naked and exposed to the dictates of the government.

The naked clone scenario ultimately would most likely bring about a holding that invalidates the anti-cloning legislation. Because the naked clone scenario casts the issue in terms of reproductive rights and personal privacy concerns, it would push the courts into the same legal territory that embraces the concepts of abortion, contraception, assisted reproduction, and related topics. Modern jurisprudence of the past few decades would pose a formidable obstacle to judges who might find the cloning of humans abhorrent and who would want to uphold the ban.

Is the cloning of a human being a form of reproduction, somewhere in the same category as conventional procreation and in vitro fertilization, and thus a fundamental right—procreative liberty—that can only be circumscribed if the government can demonstrate a compelling state interest in doing so and tailors its restrictions narrowly?¹²⁵ Are there satisfactory responses to the various anti-cloning arguments outlined previously? Does a decision to clone a person implicate privacy rights?¹²⁶ Does the recent accretion of abortion, contraception, and assisted reproduction jurisprudence embrace a constitutional right to clone, at least under some circumstances?¹²⁷ Is there a moral/normative basis for including cloning within the pantheon of constitutionally protective reproductive rights? The correct answer to all five questions is yes.

The Supreme Court has held, in a long line of cases, that the due process clauses of the Fifth and Fourteenth Amendments, which proscribe the deprivation of “life, liberty, or property, without due process of law,”

¹²⁵ See *Shaw v. Reno*, 509 U.S. 630 (1993). Strict scrutiny has been the standard of review when fundamental rights are affected. A governmental regulation of a fundamental right will only be upheld if narrowly tailored and necessary to achieve a compelling governmental interest. *Id.*

¹²⁶ See generally Jed Rubenfeld, *The Right of Privacy*, 102 HARV. L. REV. 737, 740-52 (1989) (offering a case-by-case outline of the development of the right to privacy in the courts).

¹²⁷ See Katz, *supra* note 10, at 40-51. See generally Stephanie J. Hong, Note, *And “Cloning” Makes Three: A Constitutional Comparison Between Cloning and Other Assisted Reproductive Technologies*, 26 HASTINGS CONST. L.Q. 741 (1999); Lawrence Wu, Note, *Family Planning Through Human Cloning: Is There a Fundamental Right?*, 98 COLUM. L. REV. 1461 (1998).

have a substantive component which protects substantive fundamental rights and liberties, both constitutionally enumerated¹²⁸ and implied.¹²⁹ The Court's substantive due process jurisprudence reflects more robust constitutional protection for rights or liberty interests that implicate particularly important types of choices or "zones of privacy,"¹³⁰ which directly involve personal autonomy.¹³¹ Once the Court recognizes such rights, it will uphold legislation impinging on those rights only if it serves a compelling governmental interest and is narrowly tailored to further that interest.¹³²

Analysis of fundamental rights under the rubric of substantive due process is complicated by the facts that the recognized rights to date have not always been explicitly mentioned in the actual text of the Constitution, and the Court has employed at least two tests to determine whether fundamental rights exist, neither of which is particularly instructive.¹³³ One test recognizes as fundamental those rights "that are 'implicit in the concept of ordered liberty,' such that 'neither liberty nor justice would exist if [they] were sacrificed.'"¹³⁴ Another test looks to history, recognizing as fundamental those rights that are "deeply rooted in this Nation's history and tradition."¹³⁵ The tests are disjunctive, not conjunctive; the lack of a deep historical and traditional foundation can be overcome through the combination of a deeply personal choice and the implications of that choice for firmly established liberty interests.¹³⁶ Recently, the Court appears to have added a requirement or a caveat to these tests, that the Court must be careful to describe the asserted fundamental liberty interest.¹³⁷

¹²⁸ See, e.g., *Duncan v. Louisiana*, 391 U.S. 145, 147-48 (1968); *Mapp v. Ohio*, 367 U.S. 643, 655-57 (1961).

¹²⁹ See, e.g., *Loving v. Virginia*, 388 U.S. 1, 12 (1967).

¹³⁰ See *Carey v. Population Servs. Int'l*, 431 U.S. 678, 684 (1977), quoting *Roe v. Wade*, 410 U.S. 113, 152 (1973); *Griswold v. Connecticut*, 381 U.S. 479, 484 (1965).

¹³¹ See *Planned Parenthood v. Casey*, 505 U.S. 833, 852 (1992).

¹³² See *Roe*, 410 U.S. at 155.

¹³³ See Lawton, *supra* note 12, at 332-34.

¹³⁴ *Bowers v. Hardwick*, 478 U.S. 186, 191-92 (1986), quoting *Palko v. Connecticut*, 302 U.S. 319, 325-26 (1937).

¹³⁵ *Bowers*, 478 U.S. at 192, quoting *Moore v. East Cleveland*, 431 U.S. 494, 503 (1977) (Powell, J., plurality).

¹³⁶ See *Planned Parenthood*, 505 U.S. at 852-53 (upholding a substantive due process claim despite powerful countervailing historical traditions).

¹³⁷ *Washington v. Glucksberg*, 521 U.S. 702, 720 (1997).

Although one can easily conclude that the precedent recognizes procreation or reproduction as a firmly established fundamental right,¹³⁸ the Supreme Court has never explicitly dealt with its outer boundaries and limitations.¹³⁹ When state-of-the-art assisted-reproduction technology meets the primordial procreative process in the Court's chambers, the results are not entirely predictable.

Under all of the rather vague and interrelated tests by which fundamental rights or fundamental liberty interests may be discerned by the Court, the judicial fate of anti-cloning legislation will turn on the way the Court frames the issue.¹⁴⁰ The question asked predetermines the answer received. The narrow question, "Is there a fundamental right to clone human beings for any and all purposes?" would doubtless be but a few paragraphs removed from a resounding "no" in the Court's opinion. Conversely, if the

¹³⁸ Within its substantive due process body of case law, the Supreme Court has described procreation, the process of having children, as "one of the basic civil rights of man." *Skinner v. Oklahoma ex rel. Williamson*, 316 U.S. 535, 541 (1942). Human reproduction has been considered not only a fundamental personal liberty but also a vital interest at the center of privacy rights. See *Griswold v. Connecticut*, 381 U.S. 479 (1965); *Eisenstadt v. Baird*, 405 U.S. 438, 453 (1972) ("If the right of privacy means anything, it is the right of the individual, married or single, to be free from unwarranted governmental intrusion into matters so fundamentally affecting a person as the decision whether to bear or beget a child."); *Cleveland Bd. of Educ. v. LaFleur*, 414 U.S. 632, 639-40 (1974); *Carey v. Population Servs. Int'l*, 431 U.S. 678, 684-85 (1977) ("This right of personal privacy includes . . . personal decisions 'relating to marriage, procreation, contraception, family relationships, and child rearing and education.'") (citations omitted) (quoting *Roe v. Wade*, 410 U.S. 113, 152-53 (1973)). More recently, the Court has recognized that the liberty interest safeguarded by the due process clause includes the right "to have children." *Washington*, 521 U.S. at 720; *Planned Parenthood*, 505 U.S. at 857 (reaffirming the "recognized protection accorded to the liberty relating to intimate relationships, the family, and decisions about whether or not to beget or bear a child.").

¹³⁹ See JOHN A. ROBERTSON, *CHILDREN OF CHOICE: FREEDOM AND THE NEW REPRODUCTIVE TECHNOLOGIES* 35-40 (1994) (tracing the history of the legal right to reproduction and arguing that the right applies to methods other than traditional procreation as well). But see Ann MacLean Massie, *Regulating Choice: A Constitutional Law Response to Professor John A. Robertson's Children of Choice*, 52 WASH. & LEE L. REV. 135, 162 (1995) (arguing against the extension of constitutional protection to assisted reproduction in general).

¹⁴⁰ See Laurence H. Tribe & Michael C. Dorf, *Levels of Generality in the Definition of Rights*, 57 U. CHI. L. REV. 1057, 1065-71 (1990) (analyzing the difference between the majority and dissent in *Bowers*, 478 U.S. at 187-97, 199-214, as turning on the level of narrowness or generality employed to frame the issue in light of precedent).

Court asks more expansively, "May the government forbid infertile couples to choose, of their own volition, to use available means of modern technology to have children?" the cloning clinics can confidently begin construction of new facilities. Which question should the Court ask? It depends on which view of cloning as a phenomenon prevails, and this will be determined by the Court's evaluation of the arguments previously outlined for and against cloning.¹⁴¹ This, in turn, depends on how closely the Court's view of the potentialities and limitations of cloning approximates what could actually happen in the real world.

B. Psycho-Social Arguments: Cloning in the Real World

Some of the objections to cloning mentioned in Section IV of this Article are so speculative that they resist analysis, particularly where they hypothesize rampant objectification of children, psycho-social trauma, and slippery-slope catastrophes. I will address the anti-cloning concerns by focusing on scientific reality and by analogizing cloning to real-world situations with which we are already familiar.

Some commentators have suggested that cloning is fundamentally different from "natural" procreation and even in vitro fertilization.¹⁴² This viewpoint holds that cloning is not reproduction but replication, akin to photocopying, and that the difference is of constitutional importance.¹⁴³ Cloning has been excoriated as the moral and perhaps legal equivalent of slavery or incest.¹⁴⁴ But these views reflect both a misunderstanding of cloning itself and an overemphasis on genotypic uniqueness as a prerequisite of personhood.

First, when the SCNT method is used, the mitochondrial DNA is not identical as between the donor of the nuclear DNA and the child of cloning. Their nuclear DNA will be the same, but their mDNA will be different, because the child of cloning will receive his or her mDNA from the donor of the enucleated ovum. Thus, the two persons would not be truly identical genetically—extremely similar, but not identical. But even if there were

¹⁴¹ See discussion *infra* Parts IV, V.

¹⁴² See Lori B. Andrews, *Surrogate Motherhood: The Challenge for Feminists*, 16 LAW, MED. & HEALTH CARE 72 (1988) (positing that unconventional forms of reproduction such as in vitro fertilization and surrogate motherhood should not be banned on the basis of speculative harms).

¹⁴³ See, e.g., Andrews, *supra* note 74, at 666, 669 (distinguishing cloning from in vitro fertilization and surrogacy); George J. Annas, *Human Cloning: Should the United States Legislate Against It?*, A.B.A. J., May 1997, at 80.

¹⁴⁴ See Andrews, *supra* note 74, at 667-69; Pizzulli, *supra* note 22, at 481.

absolute, one hundred percent, genotypic identity between donor and child, it has never been deemed legally significant that two persons are genetically indistinguishable. All of us in fact have seen or met pairs of people who have exactly the same genetic codes, but these people were not children of cloning. They were "produced" through a much more ancient process.

Identical twins, or even identical siblings of more than two, are referred to as identical because they possess the same genotype. Because of a phenomenon occurring very early in the embryo's development, similar to the embryo-splitting method of cloning, a mother can give birth to two or more children with the same genetic structure and composition. Indeed, identical twins are more alike genetically than a DNA donor and his or her child of cloning because identical twins share the same mDNA as well as the same nuclear DNA, and yet they are not identical in every aspect of their physical, mental, and behavioral characteristics.¹⁴⁵

For millennia, human identical twins have been born, lived their lives, and died. They were given individual names, nurtured as are other children, and afforded the same legal rights as all other people. True, identical twins may experience unusual parallels in their lives and life experiences, and may enjoy particularly powerful relational bonds with one another, but they have not been denied full legal recognition of their personhood. Neither have they been found to lack individuality, dignity, or personal autonomy, despite parents who dressed them alike, taught them alike, disciplined them alike, and continually expressed their expectations that they would fulfill parental expectations in like manner. They have generally managed to endure any teasing and joking, good natured or otherwise, that was directed at them because of their two-of-a-kind situation.

Certainly no one has argued that the genetic and environmental identity between identical twins is a reason why they should not be allowed to exist. A search of the scholarly legal literature has failed to unearth any article asseverating that identical twins should be preemptively aborted because to allow them to be born would be tantamount to a wrongful life tort. Identical twins, with the identical nuclear DNA *and* the identical mDNA, who share the same uterus at the same time, who are born within minutes

¹⁴⁵ See Gerald E. McClearn et al., *Substantial Genetic Influence on Cognitive Abilities in Twins 80 or More Years Old*, 276 SCIENCE 1560, 1562 (1997) (finding that sixty-two percent of general cognitive abilities in elderly identical twins was attributable to genetic influences, but thirty-eight percent was due to environmental factors). See also Richard Cohen, *The Mad Scientist Bogeyman*, WASH. POST, Aug. 7, 2001, at A15 (deriding popular and political opinions on the evils of cloning).

of each other, and who grow up simultaneously in the identical home environment subject to the same parental pressures, are still universally viewed as having lives worth living. They may occasionally chafe at the influence of parents who want them to dress alike, or who err on the side of excess in ensuring absolutely identical treatment for both twins in all things, but such are the types of annoyances that all children experience from their parents—no worse, only different. Some quantum of annoyance is the natural state of children with regard to their parents, and vice versa. It comes with the territory.

As in virtually all aspects of life in which human beings are involved, there is another side to the “problems” faced by identical twins. They may find a great measure of comfort, support, and fulfillment in the ineffable bond they feel to their identical sibling.¹⁴⁶ Perhaps more than most sisters and brothers, they can enjoy a sense of true companionship with one another, an intangible emotional bridge that can span great expanses of time and space. This level of familial union, powerful enough to unite people throughout their lives with a special sense of shared essence, is something many non-twins would envy and would covet in their own lives. Would donor and child of cloning enjoy a unique bond as well? The experience of scientific studies with identical twins suggests that this is a real possibility.

The commentators who theorize that parents would feel and exhibit less emotional bonding to their children of cloning than to other children¹⁴⁷ ignore the special bonds often felt between identical twins.¹⁴⁸ One may safely presume that the majority of people interested in cloning would do so with one of three potential sources of DNA in mind: (1) themselves; (2) their life partner; or (3) their own child. In two of these three naked clone situations, a given parent would have a powerful genetic link to the child, and in the third, the child would possess a profound genetic link to a cherished loved one. Under all of these circumstances, if the evidence regarding identical twins is any indication, parents may feel a stronger emotional link to their children of cloning, not a weaker bond or a commodity-like detachment.¹⁴⁹ These families may reasonably be expected to enjoy a higher level of emotional bonding, greater mutual solicitude, and

¹⁴⁶ See Nancy L. Segal, *Behavioral Aspects of Intergenerational Human Cloning: What Twins Tell Us*, 38 JURIMETRICS J. 57, 60 (1997).

¹⁴⁷ See, e.g., Forsythe, *supra* note 81, at 536-40; Kass, *supra* note 80, at 21.

¹⁴⁸ See Segal, *supra* note 146, at 60, 65 (reporting the special emotional bonds enjoyed by many identical twins and the additional richness and closeness this brings to the twins' lives).

¹⁴⁹ See Robertson, *supra* note 87, at 1412.

deeper shared understanding—far from the feared “despotism of the cloners over the cloned,” a reversion to the cruel practices of ancient Sparta, and the depersonalized treatment of children as “artifacts” or “products.”¹⁵⁰

The genotypic identity between DNA donor and child of cloning is properly viewed in the same light as identical twins, with, if anything, even more powerful arguments in support of personhood and individuality. As with identical twins, there may eventuate striking similarities in certain aspects of life, but also differences.¹⁵¹ Unlike identical twins, the donor and child of cloning would be some years apart in age, often a generation apart, with all the cultural and experiential divergences that implies. In all circumstances except the situation in which parents seek to clone their own child, the donor and child of cloning would have different parents, would be carried in different uteri,¹⁵² and would be raised in different household environments. They would have different friends and close relatives, would have different teachers, and would be shaped by many divergent environmental factors.¹⁵³ They may well be more dissimilar than identical twins reared apart. But irrespective of how similar they may be in terms of genotype, phenotype, personality, and preferences, they would be every bit as much individual persons as are identical twins under the law. Any attempt to elide cloning with mechanical replication would not be capable of formulating a legally significant deficiency in the naked clone.

This is true despite possible parental exertions to rear the child of cloning to be the living replacement of a particular individual or a faithful replica of a living exemplar. Under some of the scenarios we have

¹⁵⁰ Kass, *supra* note 80, at 21.

¹⁵¹ See NBAC REPORT, *supra* note 17, at 33, 66; Segal, *supra* note 146, at 63 (discussing divergences among identical twins in such features as physical characteristics, intellectual abilities, vocational interests, and social attitudes, presumably due to the differential environments experienced at the prenatal, perinatal, and postnatal stages); Richard Dawkins, *Thinking Clearly About Clones: How Dogma and Ignorance Get in the Way*, FREE INQUIRY, June 22, 1997, at 13.

¹⁵² The first of many environments that affect human development is the uterus; there is scientific evidence adumbrating the many effects of the uterine environment on traits as important as intelligence. See B. Devlin et al., *The Heritability of IQ*, 388 NATURE 468, 469 (1997). Of course, the uterine environment and the eventual human infant can be profoundly altered by such stressors as maternal alcohol and tobacco use during pregnancy. See LAURA E. BERK, CHILD DEVELOPMENT 92-102 (4th ed. 1997).

¹⁵³ See Goldman, *supra* note 90, at 112-13 (discussing the importance of many pre-natal and post-natal environmental variables in determining the phenotypic expression of even identical genotypes).

envisioned, a person or couple might want to clone in order to give a dying loved one "another chance," or to honor and emulate an admired person, even oneself. In these situations, the caregivers could be expected to make every effort to bring up the new child in the same manner as the DNA donor. They might supply the same bedroom, toys, books, music, clothing, games, lessons, and videos. They could try to recreate many of the same cherished life experiences, such as favorite vacations, outings, activities, and educational opportunities. They might try to narrow the range of options and experiences open to the child. In short, they may do everything that countless legions of parents have done throughout the ages in an attempt to live vicariously through their children and to have them carry on the family business and traditions. And, they (and their children) may be just as surprised, pleased, and/or frustrated by the results.

The same is true for parents who choose to clone in the hope that their child will display outstanding talents in some selected areas of endeavor. Whether their objective is a superstar baseball player, a musical prodigy, a mathematical wizard, or a scientific genius, people who selectively clone on the basis of guaranteeing success in a specific area would understandably choose a willing DNA donor whose phenotype and achievements they consider optimal under all the circumstances. Once they secure the best available DNA for their child's genotype, they would rear the child with great emphasis on education, training, exposure, and experience in the chosen field, immersing the child in the subject matter. And again, the results will be as unpredictable (or as predictably diverse) as those obtained by countless other well-meaning but overbearing parents throughout human history. Certainly and inevitably, some parents will be disappointed with the behavior and achievements of their children of cloning in these situations, and the children will be aware of some degree of parental disapproval. However, to suggest that this is anything new, or that it would be immeasurably worse than it has been for children and parents from time immemorial, is rank speculation at best.

Because human beings are not sheep, literally or figuratively (with apologies to Dolly), free will is a vital and often unpredictable variable in every life. Regardless of a person's genotype, he or she has the freedom to exercise individual options across a sprawling spectrum of life choices, year by year. Even the staunchest exponents of genetic determinism would admit that there is something ineffable about being human, something that surpasses genetic makeup.¹⁵⁴ If the courts that will grapple with anti-

¹⁵⁴ See Dena S. Davis, *What's Wrong With Cloning?*, 38 JURIMETRICS J. 83, 83-84 (1997); Bonnie Steinbock, *The NBAC Report on Cloning Human Beings: What it Did—And Did Not—Do*, 38 JURIMETRICS J. 39, 42-43 (1997) (analyzing the

cloning legislation grasp this, they will inexorably be drawn to the conclusion that SCNT cloning is properly analyzed as another form of human reproduction, different from the others not in the fundamentals but only in the details.

The extreme slippery slope horrors conjured up by some opponents of cloning contain even less substance.¹⁵⁵ As pointed out earlier, cloning does not have anything to do with mass-production of identical people. Whether the feared outcome is an army of Adolf Hitlers, a *fatwa* spearheaded by thousands of Osama bin Ladens, an NBA overflowing with Michael Jordans, or a Las Vegas showroom full of Elvis Presleys, the fears are unfounded—the stuff of nightmares or pipe dreams.¹⁵⁶ Cloning cannot be carried out in a factory arrayed with row upon row of large test tubes, despite various depictions in popular films such as the Jurassic Park series.¹⁵⁷ Every embryo would need to be individually implanted in the uterus of a living woman, one per person, and gestated for the usual nine months, with all the inconveniences, travails, discomfort, and pain that has always entailed.

Plus, it is important to remember that the outcome obtained after all of those failed attempts and after nine months of gestation is a human baby.¹⁵⁸ Cloning does not “produce” a full-formed adult creature such as Frankenstein’s monster, ready off-the-shelf to wreak havoc on an unsuspecting world. When any living creature is born through the intervention of cloning, that creature is a human baby, needing to be constantly cared for, fed, and changed. The personality, powers, and predilections that will be exhibited by that baby as an adult will not be evident for many years just as with all other human babies.¹⁵⁹ Thus, anyone who expects to use cloning

extent to which opponents of cloning overestimate the centrality of genetics as a determinant of human individuality).

¹⁵⁵ See Silver, *supra* note 106, at 49 (listing some of the imagined horrible misuses of human cloning).

¹⁵⁶ Horrific visions of armies of mass-produced, malevolent clones have long held a special fascination for film-makers. STAR WARS EPISODE II: ATTACK OF THE CLONES (Lucasfilm 2002), is one of the latest and most ubiquitous of these fantasies. See generally James Warren, *Hollywood and Cloning: An Old Pairing*, CHI. TRIB., Sept. 29, 1997, at 5.

¹⁵⁷ Although one memorable line from the Jurassic Park films (Universal Studios) does seem particularly apposite to the issue of cloning: “Life will find a way.”

¹⁵⁸ See NBAC REPORT, *supra* note 17, at 83 (“Should this type of cloning proceed, however, any children born as a result of this technique should be treated as having the same rights and moral status as any other human being.”).

¹⁵⁹ See Silver, *supra* note 106, at 52-53.

to create adults for any specific aim, whether benign or evil, would have to be exceedingly patient and ready to work and wait for decades for the eventual result. Will any mad scientist or arch-villain be willing or able to change diapers of, breast-feed, and burp the anticipated army of future henchmen in their infancy? The most active imaginations that have conjured up the specter of cloning as an evil plague would be hard-pressed to visualize any sinister mastermind with the tenacity and capacity to nurse hosts of future accomplices through all the years of changing diapers, teething, toilet training, three o'clock a.m. nightmares, chicken pox, tantrums, growing pains, puberty, and adolescent rebellion. Even loving parents can sometimes scarcely imagine it.

If in vitro fertilization has not threatened the world with mass-produced people, neither will cloning, because no aspect of either one presents the option for assembly line procreation. If anything, cloning is *less* susceptible to rapid, efficient, large-scale reproduction, owing to the daunting failure rates that are likely to persist for many years. While we can expect the success rate of cloning to improve with time and further technical advances, there is no reason to presume that it will ever be as high as that associated with coital reproduction. Thus, the Xerox objection is pure fantasy.

Once we move beyond the horror-movie level of argument, the anti-cloning position remains equally unpersuasive.¹⁶⁰ Is there a realistic possibility that children of cloning will be enslaved, used as involuntary organ donors, treated as commodities, or otherwise disproportionately be abused and depersonalized? Will their caregivers consider them sub-human, more akin to property or pets than children, and subject them to a phalanx required to undergo physical and psychological assaults? Will families dissolve as parents, having exercised total control over their children's genotypes, somehow feel less emotional attachment to them—feeling no more bond to them than to their cars or sweaters or any other manufactured product? Will the clone-specific abuses spread to such a pervasive extent that the courts will deem it preferable that cloning never take place at all?

To suggest that any of these postulated evils are apt to become more than theoretical threats is to underestimate the humanity of the people who

¹⁶⁰ Some notable opponents of cloning have gone so far as to imply that, irrespective of actual evidence, cloning is wrong because it feels wrong to us. See LEON R. KASS & JAMES Q. WILSON, *THE ETHICS OF HUMAN CLONING* 19 (1998) ("We are repelled by the prospect of cloning human beings not because of the strangeness or novelty of the undertaking, but because we intuit and feel, immediately and without argument, the violation of things that we rightfully hold dear."). This, of course, is more properly categorized as bias, baseless fear, unarticulated emotion, or religious sentiment than law or logic.

would clone and to overestimate the centrality that knowledge of a clonal origin would occupy in the hearts and minds of the people involved. It also assumes away the force of the rule of law.

There is no question that children born through cloning would be entitled to every legal protection applicable to all other children. There is absolutely no danger that these children would somehow be exempted from the laws prohibiting child abuse, mandating proper care and support of children, requiring the education of children, outlawing the nonconsensual harvesting of organs, and banning child labor or involuntary servitude. These laws would be fully applicable, and would stand as a deterrent to would-be violators with the same efficacy as in all other circumstances. No legislator, let alone a majority of legislators in any jurisdiction, would take the position that any of these laws should be amended to deprive coverage to children of cloning. There would be no civilized public policy rationale for doing so, and the manifest injustice of such action would render it political suicide for anyone who attempted it. Once the naked clone is born, he or she would be clothed with every one of the legal rights—from constitutional guarantees to statutory protections—that cover all of us. The feared violation of these existing, indisputably applicable legal safeguards is a poor argument in favor of denying the naked clone the opportunity to live.

Given the complete array of legal strictures, would caregivers nonetheless single out the children of cloning for poor treatment, withheld affection, and depersonalizing abuse? Again, our immersion in popular entertainments has inured us to the suggestion that people, on average, are simply awaiting an opportunity to visit horrors on the children in their homes. In the world outside Hollywood, there are no barbaric hordes eager to use cloning to provide them with helpless subjects for their wretched experiments and abuses. On the contrary, there are multitudes who yearn for an opportunity to nurture a child in their lives.

Irrespective of the primary reason why any particular individual or couple might want to have a child through cloning, the opportunity to nurture a child is likely among the many reasons why people have always wanted children. These reasons are varied, complex, and overlapping, and may shift over time. What remains constant is that the desire to have children is one of the most deeply rooted, powerful, and profound of all human aspirations.¹⁶¹

The following is a partial list of possible reasons people might want to have children. The list appears in no particular sequence: (1) Perpetuate

¹⁶¹ See Silver, *supra* note 106, at 53.

one's personal or family name, traditions, preferences, and/or business; (2) transmit some of one's genes to the next generation to achieve a modicum of physical immortality; (3) provide a source and an object of companionship and love; (4) supply a source of care, love, companionship, and security in the last years of life; (5) provide a person whom one can love, nurture, and help long-term; (6) comply with religious, familial, and/or societal expectations; (7) provide a deeper source of meaning in life, a reason for being; (8) secure a beneficiary of and heir to one's lifetime accumulation of savings and other material goods, both during life and upon death; (9) satisfy the desire to enjoy a child-inclusive life, featuring caring, play, teaching, and shared exploration of the wonders of existence; (10) relive treasured memories from one's own childhood; (11) rectify perceived deficiencies and missed opportunities from one's own childhood; (12) vicariously experience aspects of life, including career decisions and making certain choices among life's options, one regrets never experiencing firsthand; (13) altruistically devote oneself to a cause greater than self; (14) create more connections with relatives and other people; (15) make an impact on the future that will live beyond one's own life, perhaps by rearing one's children to enter specific professions or excel in specific fields; (16) secure an heir apparent to an actual or perceived throne or position of power and privilege, whether in government or in business; and (17) obtain an in-family source of help with the family's farm or other business.

Most people, of course, do not approach the decision to have children with a checklist in hand. Even the archetypal rational utility maximizer would be far more likely to tackle the procreation question with heart, not spreadsheet. The reasons for having children are so numerous and so basic to the human condition—indeed, to all sentient life—that they generally do not require articulation. They are understood on a subconscious level and are deeply felt. But to the extent it is possible to parse these reasons rationally and methodically, let us consider how the decision to clone compares to other decisions to have children.

Whatever the mode of reproduction, people will differ as to which reasons are most important and which are secondary or even entirely absent. This is true without factoring in the cloning option. For example, reason number two (transmit some of one's genes to the next generation to achieve a modicum of physical immortality) is extremely powerful for some people, and moves them to endure great exertions and tremendous personal expense in the pursuit of in vitro fertilization or surrogacy while eschewing the adoption option. Since the beginnings of civilization, it has

been paramount for some parents to rear a child who will live, work, and act in a certain predetermined manner, whether to carry on the family business, avenge some wrong, or achieve ambitions left unrealized in the parents' lives. Such people have always treated, educated, pressured, and trained their children to fit within their template with mixed results—some successes and some unfortunate consequences for both parent and child. So reasons one (perpetuate family name, etc.), twelve (vicariously experience life), and fifteen (impact the future) are not new, and are not unique to would-be cloners. Moreover, although some of the reasons on the list may be considered utilitarian, even manipulative or exploitative, one hopes that it is a rarity where one chooses to have children, does have children, and rears those children, solely for selfish, calculated, personal profit. Love and affection, and the other altruistic or mutually supportive reasons would usually accompany the utilitarian approach if not dominate it.

It appears that every one of the listed reasons for having children applies with at least equal force to cloning as to other alternatives. None of the reasons would fail to apply to cloning, and some might apply even more strongly than usual. But, as with other ways of having children, people interested in cloning would typically have a complex and evolving amalgam of motivations. Certainly love would be the predominant motivator in the naked clone scenario and its variants, just as it usually is in other forms of reproduction.¹⁶² In fact, love may be more universally the prime factor in cloning than in traditional procreation, for the simple reason that it is not possible to clone unintentionally, whereas it is possible to become pregnant despite a desire to the contrary, through failure of contraceptives, irresponsible unprotected sex, or rape.¹⁶³ We can rest assured that people would not endure the expense and effort of cloning

¹⁶² See John A. Robertson, *Two Models of Human Cloning*, 27 HOFSTRA L. REV. 609, 624 (1999) (arguing that, at least with the benefit of appropriate counseling, people who raise a child of cloning will probably be competent and loving parents committed to their child's best interests and unique identity).

¹⁶³ See James Q. Wilson, *Sex and Family*, in KASS & WILSON, *supra* note 160, at 89, 94 (likening cloning to in vitro fertilization ("IVF"), where there is no evidence that IVF had a harmful effect on the children's mental or psychological status or their relationships with parents); Segal, *supra* note 146, at 61-62 (stating that children conceived through assisted reproduction "did not differ from naturally conceived children in emotions, behavior, or quality of family relations" and indicating that adoptive parents and those conceiving children through assisted reproduction "expressed greater warmth and emotional involvement with children, as well as greater satisfaction with parenting roles, relative to birth parents.").

unless they truly wanted to have a child. There would be no surprise, accidental, or otherwise unwanted children of cloning.¹⁶⁴

Thus, the factors that spur people to clone would be very similar to the traditional reasons for wanting children, and might differ from case to case only to the same degree that motivations have always differed among those who wish to adopt, versus procreate through coital reproduction, versus the use of assisted reproduction, including in vitro fertilization and surrogacy.¹⁶⁵ The means of reproduction are varied, but the ultimate goals are harmonious if not utterly indistinguishable.

These factors also constitute a formidable moral/normative reason why cloning should not be legally segregated from all other forms of human reproduction and subjected to sweeping bans. The naked clone scenario and its variants present us with people, whether married or single, heterosexual or homosexual, who want to have children with some biological tie to them, and want to nurture these children. Presumably many of these people would be unable to have their own biological children through any other means, because of infertility of one or both members of the couple, lack of a partner, presence of serious genetic problems within one or both members, absence of an opposite-sex partner, or other circumstances. Yet they would have all of the reasons any traditional procreative couple has for wanting children, and an equal commitment to and capability of nurturing their children to maturity and independence. Why, then, should they be denied? Morally, they should be afforded the opportunity to have, and care for, their own biologically related children by the only means left available to them by the vagaries of life.

There are one or two additional reasons for cloning not on the general list. As mentioned, some might want to clone themselves to secure a potential source of compatible, non-essential organs, blood, and other bodily components. Even if this were the primary motivator in some cases, as where the DNA donor is afflicted with a serious medical condition, it is probable that additional motivators would soon begin to evolve and even overwhelm the original utilitarian impetus. After all, an infant child of cloning is still a baby, and would presumably be equally as appealing and endearing to adults as babies have always been. Adults seem to be

¹⁶⁴ See Sarah S. Brown & Leon Eisenberg, *Unintended Pregnancy and the Well-Being of Children and Families*, 274 JAMA 1332, 1332 (1995) (noting that nearly sixty percent of the pregnancies in the United States are unintended at the time of conception, whether because they occur at a suboptimal time or are entirely unwanted).

¹⁶⁵ See Katz, *supra* note 10, at 23-27 (discussing the argument in favor of cloning as a form of reproduction).

instinctively drawn to infants and driven to care for them and nurture them. As adult and child share experiences over time, it is virtually inevitable that mutual love and genuine bonding would supplement or replace other motivations. Likewise, a desire to replicate as exactly as possible oneself, a lost loved one, or an admired third party would be apt to give way to love, as reality interferes with the theory that led to the cloning decision.¹⁶⁶

Might the cloning situation constitute an especially extreme or potentially abusive strain of some of the motivators, such as reasons one, twelve, and fifteen? This is unlikely. People have traditionally seemed to believe their children were the veritable reincarnation of themselves, even when another person contributed half of the DNA. Cloners could scarcely be more zealous in their efforts to ensure that their children adhere to the desired path in life than some parents have always been in seeking to direct their progeny's lives. That does not mean it is right for parents to treat their children this way, only that the human race has a long history of both success and failure, triumph and tragedy, along these lines. Again, in most cases, love is more powerful and enduring than ego, ambition, or any other selfish motivator. In short, cloning is properly viewed as one more alternative in the choice to reproduce, akin to all the others in its array of advantages and disadvantages. It is a form of human reproduction, not mechanical replication or the malevolent plaything of mad scientists, and should be recognized as such by the law.

Those who, Cassandra-like, foresee calamitous and ruinous abuses of the new powers made possible by cloning have forgotten that technology is both created by and ruled by people—people with common decency and common sense. Fears of cloning becoming rampant and seriously diminishing genetic diversity, undermining familial love, or spawning a recrudescence of slavery, are of a type that is not new. It was not long ago that the birth control pill was a novel and powerful scientific advancement, with the power to bring human reproduction to a halt. The widespread availability of birth control pills could have brought to pass the extinction of the human race in one generation . . . in theory. But that theory would have required a world in which people abandoned their core instincts to have children and subverted their highest impulses to the mindless service of a technological tool. That world exists only on paper, on film, and in the imagination. Decades after the advent of the birth control pill, procreation has not ended,

¹⁶⁶ See James Q. Wilson, *The Paradox of Cloning*, in KASS & WILSON, *supra* note 160, at 64-65 ("Parents, whether they acquire a child by normal birth, artificial insemination, or adoption, will, in the overwhelming majority of cases, become deeply attached to the infant and care for it without regard to its origin.").

and the fact that you are here to read these words is evidence on behalf of the real world.

Of course, it is possible that some courts, including the Supreme Court, will be sufficiently determined in their personal opposition to the cloning of humans that they will find a way to distinguish cloning from other forms of reproduction. Particularly powerful religion-based or morality-rooted aversion could move judges and justices to construct a legal and policy justification for upholding anti-cloning laws. Arguably, such factors moved the Court narrowly to define the issues in post-*Roe* controversial cases involving sodomy and assisted suicide, and to rule in a manner inconsistent with the broader principles evident in the jurisprudence.¹⁶⁷ Uncritical acceptance of some of the more horrific, worst-case, slippery-slope scenarios, coupled with personal religious and moral beliefs, might lead judges to uphold the bans. But adherence to *stare decisis* and the rule of law should generate a line of judicial decisions in which bans on the cloning of humans are consistently struck down.

Would it be legally significant that some people might want to clone for reasons some judges find repugnant? For example, consider situations different from the naked clone scenario, but not so extreme as to run afoul of existing laws against murder or child abuse. Perhaps the most intense egocentric motivations for cloning would offend judges as megalomaniacal self-glorification and the apotheosis of self. A yearning for personal fame and/or physical immortality would be far less sympathetic to many jurists than the desire of couples and individuals to use cloning as a form of assisted reproduction for more traditional reasons for family building. But absent manifestations that cross preexisting and well-established legal lines, such as cloning for involuntary harvesting of organs, slavery, or sexual abuse, the law should not intervene to prevent people from using cloning for reasons judges personally consider improper.¹⁶⁸

The courts generally have not seen fit to interject themselves into reproductive decision-making, so as to substitute their judgment for that of would-be parents in deciding whether to have a child. The few exceptions,

¹⁶⁷ See *Bowers v. Hardwick*, 478 U.S. 186, 190 (1986) (narrowly framing the core issue as “whether the Federal Constitution confers a fundamental right upon homosexuals to engage in sodomy” rather than as a fundamental privacy right); *Washington v. Glucksberg*, 521 U.S. 702, 723 (1997) (narrowly framing the issue as “whether the ‘liberty’ specially protected by the Due Process Clause includes a right to commit suicide,” not as a fundamental right to privacy). See also Lawton, *supra* note 12, at 333-34.

¹⁶⁸ See Katz, *supra* note 10, at 31-35.

of questionable validity in their own right, are limited to extreme cases such as compulsory sterilization of mentally challenged persons,¹⁶⁹ and prisoners denied conjugal visits or the use of artificial insemination with their spouses.¹⁷⁰ There is certainly no justification for expanding these dubious doctrines to ban cloning.¹⁷¹ The reasons why people desire to have children, as listed previously,¹⁷² include some that offend the personal morals of certain people. We may think it is morally wrong for someone to want a child mainly to carry on the family business, or to provide a way for the parent to live again vicariously through the child, or to take care of the parent during enfeebled old age. But would-be cloners did not invent, and have no monopoly on, such unappealing motivations; others beat them to the punch by several tens of thousands of years. People have chosen to have children for these and other arguably ignoble reasons since the dawn of humanity. Yet the law does not empower the government to forbid its citizens to reproduce on this basis. Government cannot ask couples or individuals to explain and justify the reasons why they want to reproduce—whether through cloning or any other means. As the time-hallowed saying goes, it is none of their business.

This result may dismay some; however, decades of Supreme Court holdings have left little doctrinal daylight between cloning and other facets of the reproduction, abortion, contraception, and privacy construct.

C. *Galileo in Modern Chains and the Right to Research*

When the facts diverge from the naked clone situation, somewhat different legal issues become relevant. For example, some of the more

¹⁶⁹ *Buck v. Bell*, 274 U.S. 200, 207 (1927). See Paul A. Lombardo, *Three Generations, No Imbeciles: New Light on Buck v. Bell*, 60 N.Y.U. L. REV. 30 (1985) (debunking the factual underpinnings of the case).

¹⁷⁰ See *Goodwin v. Turner*, 908 F.2d 1395 (8th Cir. 1990) (holding that an inmate's status as a prisoner was sufficient to justify the prison's policy of prohibiting the inmate from artificially inseminating his wife); *Anderson v. Vasquez*, 827 F. Supp. 617 (N.D. Cal. 1992) (holding that an inmate on death row lacked the right to conjugal visits and was not entitled to compel the prison to furnish him with artificial insemination services), *aff'd in part, rev'd in part*, 28 F.3d 104 (9th Cir. 1994).

¹⁷¹ See generally Kristin M. Davis, Note, *Inmates and Artificial Insemination: A New Perspective on Prisoners' Residual Right to Procreate*, 44 WASH. U. J. URB. & CONTEMP. L. 163 (1993); Jacqueline B. DeOliveira, Comment, *Marriage, Procreation and the Prisoner: Should Reproductive Alternatives Survive During Incarceration?*, 5 TOURO L. REV. 189 (1988).

¹⁷² See *infra* pp. 42-43.

sweeping bans include prohibitions on the cloning of humans for any purposes, including scientific or medical research. Some researchers may want to use cloned humans, presumably limited to early stages of embryonic development, to explore stem cell options and other issues.¹⁷³ Such experiments would in no event lead to the birth of a living infant and, as such, would fall within a different category from the several variants of the naked clone scenario. Presumably there would be no implantation in any woman's uterus and no implication of a woman's privacy rights. There would be no issues of parental rights, nor of reproductive liberty.

However, these cases would implicate important rights too.¹⁷⁴ It can be argued that scientific or medical research constitutes a form of expression within the meaning of the First Amendment.¹⁷⁵ The research process involves a quest for truth, a hunt for more information, which is at the heart of the First Amendment, as an indispensable prerequisite to the more familiar dissemination of information.¹⁷⁶ Also, perhaps the performance of research itself could be viewed as a type of expressive conduct or symbolic speech, making the statement that such research is valuable and the furtherance of knowledge concerning a hypothesis is a worthy aim.¹⁷⁷

If one accepts either of these premises, a total ban on one particular form of research, i.e., that involving the cloning of humans, should be

¹⁷³ Goldman, *supra* note 90, at 109-11 (discussing various medical-scientific advantages of cloning for research purposes).

¹⁷⁴ See Paul Berg & Maxine Singer, *Regulating Human Cloning*, 282 SCIENCE 413, 413 (1998) (asserting that legislation is a suboptimal means for the regulation of scientific inquiry and progress). For an interesting compendium of short essays articulating various legal and policy-based arguments against bans on scientific inquiry into the cloning of humans, see Reason Online, *Criminalizing Science*, at <http://reason.com/bioresearch/bioresearch.shtml> (Nov. 2001).

¹⁷⁵ See Matthew B. Hsu, Note, *Banning Human Cloning: An Acceptable Limit on Scientific Inquiry or an Unconstitutional Restriction of Symbolic Speech?*, 87 GEO. L.J. 2399, 2410-16 (1999).

¹⁷⁶ See John A. Robertson, *The Scientist's Right to Research: A Constitutional Analysis*, 51 S. CAL. L. REV. 1203, 1217-18 (1977) (asserting that the scientific method depends on experimentation as an essential prelude to the dissemination of scientific ideas).

¹⁷⁷ See generally STEVEN GOLDBERG, *CULTURE CLASH: LAW AND SCIENCE IN AMERICA* 7-9 (1994); Gary L. Francione, *Experimentation and the Marketplace Theory of the First Amendment*, 136 U. PA. L. REV. 417, 431-58 (1987) (evaluating the various ways in which the experiment is itself a form of expressive conduct); Roy G. Spece, Jr. & Jennifer Weinzierl, *First Amendment Protection of Experimentation: A Critical Review and Tentative Synthesis/Reconstruction of the Literature*, 8 S. CAL. INTERDISC. L.J. 185 (1998).

considered a content-based restriction on expression, invoking strict scrutiny by the courts. The ban would be explicitly aimed at one specific type of research, not neutrally applicable to scientific research in general, and it would be deliberately and precisely targeted against human clonal experimentation. The gathering and dissemination of scientific data specific to the cloning of humans would be the entire focal point, tantamount to an explicit ban on expressive conduct that proclaims the worthiness of pursuing human clonal research. This is content-based regulation of expression, and it calls for strict scrutiny. A compelling state interest is required in order to survive strict scrutiny and, as we have discussed, it could be difficult to cobble together such an interest in banning cloning, given its similarities to other forms of reproduction and the implausibility of the worst-case arguments. Moreover, it is a bedrock pillar of the First Amendment that government may not ban or punish speech, including expressive conduct, based on its content merely because that content is deemed repugnant, unpopular, or inadvisable.¹⁷⁸

The right or liberty to conduct scientific research—to search for knowledge and truth—has some support in Supreme Court precedent. In several cases, the Court has stated that the First Amendment safeguards a “marketplace of ideas,” and, as with any marketplace, it must be continually stocked with new supplies, whether obtained by the press or by scientific researchers.¹⁷⁹ The actions of those who produce information and ideas for the marketplace of ideas are deserving of First Amendment protection, at least as much as the actions of those who disseminate information and ideas.¹⁸⁰ Before ideas and information can be expressed,

¹⁷⁸ See *Texas v. Johnson*, 491 U.S. 397, 414 (1989) (striking down Texas legislation penalizing those who burn the American flag to express an anti-American viewpoint). See also *R.A.V. v. City of St. Paul*, 505 U.S. 377, 382, 391 (1992) (invalidating a hate-speech law as a content-based restriction).

¹⁷⁹ See, e.g., *Branzburg v. Hayes*, 408 U.S. 665, 705 (1972) (likening the information production function of the news-gathering press to that of researchers); *Buckley v. Valeo*, 424 U.S. 1 (1976) (finding First Amendment protection for the financing of political speech). See also IRA H. CARMEN, *CLONING AND THE CONSTITUTION* 35-36 (1985); Ira H. Carmen, *Should Human Cloning Be Criminalized?*, 13 J.L. & POL. 745, 752 (1997) (arguing that cloning research and other scientific inquiry implicates protected First Amendment values); June Coleman, Comment, *Playing God or Playing Scientist: A Constitutional Analysis of State Laws Banning Embryological Procedures*, 27 PAC. L.J. 1331, 1387 (1996) (maintaining that “[v]arious Supreme Court decisions, [when] read together, seem to acknowledge a freedom to conduct research which is anchored in the freedom of speech”).

¹⁸⁰ See Francione, *supra* note 177, at 428-29 (discussing the recognition by the framers of the Constitution of the “sacred” nature of scientific inquiry).

they necessarily must first be created or discovered by someone. The Court has recognized, in dicta, a Fourteenth Amendment liberty interest in conducting research or inquiry as well,¹⁸¹ although some lower federal courts have held that there is no fundamental right to conduct research on human fetuses.¹⁸² Substantive and procedural due process requirements have also been postulated as sources of constitutional protection for scientific inquiry.¹⁸³

Modern events seldom recall the official condemnation and persecution suffered by the renowned seventeenth-century scientist Galileo Galilei, but the bans on research and exploration into cloning have done just that. The Inquisition forced Galileo publicly to deny, under threat of torture, what he had learned through scientific study—that the earth revolved around the sun, i.e., the Copernican theory—in order to escape execution for the crime of heresy. Found guilty and sentenced to life imprisonment, he spent the last ten years of his life under house arrest.¹⁸⁴ This infamous travesty was made possible by a society in which the line between Church and State was blatantly breached and a person could be criminally punished for activities that discomforted the religious sensibilities of the dominant elite. When those in power use that authority in a preemptive strike to seal off entire categories of learning and inquiry, the loss is unfathomable. No one can ever know what might have been known had the freedom to discover not been denied. Second and third generations of valuable breakthroughs into tangentially related areas might have been gained but for the prior restraint on research, and again, we can never know what we might have learned. This is a loss without limits.

¹⁸¹ See *Meyer v. Nebraska*, 262 U.S. 390, 399 (1923) (noting that the Fourteenth Amendment guarantees, as part of the right to liberty, the freedom “to acquire useful knowledge . . . and generally to enjoy those privileges long recognized at common law as essential to the orderly pursuit of happiness by free men”).

¹⁸² See *Wynn v. Scott*, 449 F. Supp. 1302, 1322 (N.D. Ill. 1978), *aff’d sub nom. Wynn v. Carey*, 599 F.2d 193 (7th Cir. 1979); *Margaret S. v. Edwards*, 488 F. Supp. 181, 220-21 (E.D. La. 1980). See also NBAC REPORT, *supra* note 17, at 6 (stating that the freedom of scientific inquiry is not an absolute right and scientists are expected to conduct their research according to widely held ethical principles, with limits on scientific freedom acceptable at times).

¹⁸³ See Richard Delgado & David R. Millen, *God, Galileo, and Government: Toward Constitutional Protection for Scientific Inquiry*, 53 WASH. L. REV. 349, 394-99 (1978).

¹⁸⁴ See generally ALBERT DI CANZIO, *GALILEO: HIS SCIENCE AND HIS SIGNIFICANCE FOR THE FUTURE OF MAN* (1996); JEROME J. LANGFORD, *GALILEO, SCIENCE AND THE CHURCH* (1998).

When the law places Galileo in chains, the entire society of humankind is likewise shackled. We are forced, like Galileo, to kneel before the power of the state and abjure the reality we have found through so many years of work and sacrifice, pretending instead that modern discoveries were never made. We artificially and arbitrarily close the collective mind of the people to the facts, because myths are safer and more familiar to those in command of the coercive force of government. It would require a compelling state interest indeed to justify such a breathtaking curtailment of the freedom of inquiry.

Attempts to find this elusive state interest have led some to liken cloning research to the vilest, most extreme, pseudo-scientific examples available in the bottom of the dustbin of history, such as the notorious experiments by Josef Mengele on living prisoners in Nazi concentration camps.¹⁸⁵ There are such vast differences between the two situations that one scarcely knows where to begin. Legitimate experiments and laboratory procedures involving very early stage human cells are legally and morally indistinguishable from other contemporary activities that are free from governmental censorship. This is not a case of compelling already-born, sentient human beings to diabolical, excruciating, and ultimately fatal surgical procedures to satisfy the perverse curiosity of an evil doctor. There is no legal basis for placing modern cloning research either into an unprotected class by itself, or into a locked room with Mengele as the only cellmate.

Some would nonetheless assert that there is a compelling state interest in preventing the creation and use of living human embryos for the explicit purpose of serving as the raw materials for laboratory experiments. In this view, such cloned embryos might be deemed human beings, and the clinical exploitation and commodification of them an evil well within the power of government to ban. Notwithstanding the potential benefits that might be reaped from these experiments,¹⁸⁶ the sacredness of human life would stand

¹⁸⁵ See generally LUCETTE MATALON LAGNADO & SHEILA COHN DEKEL, CHILDREN OF THE FLAMES: DR. JOSEF MENGELE AND THE UNTOLD STORY OF THE TWINS OF AUSCHWITZ (1991). Mengele performed forcible, brutal experiments on the prisoners of the Auschwitz death camp, including some 3000 identical twins, very few of whom survived his horrific operations. *Id.*

¹⁸⁶ See Jerome P. Kassirer & Nadia A. Rosenthal, *Should Human Cloning Research Be Off Limits?*, 338 NEW ENG. J. MED. 905, 905 (1998) (arguing that research on SCNT could produce many important benefits, including valuable information on the mechanism of aging, the cause of cancer, and improved treatments of such diseases as diabetes mellitus, leukemia, and genetic disorders).

as an insurmountable obstacle to using cloned human embryos for medical or scientific research.

A related point deals with the large numbers of failures likely to be endured en route to every successful cloning. This concern applies not only to laboratory research but also to the naked clone scenario in which parents seek to create a live baby. Recall the dismal success rate experienced during the process that resulted in Dolly. Until and unless massive progress is made toward improving the lopsided ratio of failures to successes, it is possible that every live child of cloning would be outnumbered many times over by embryos that never make it to a live birth, never survive the earliest stages of infancy, or are deformed. If cloning produces dozens or even hundreds of doomed, damaged, or discarded embryos and infants for every healthy baby, this could spark intense opposition on the grounds that this is an appalling waste of nascent human life. Again, it appears to reduce people to commodities and to accept many dead embryos and deformed babies as just another of the costs of doing business for the production of every viable, normal child of cloning.

There is a certain visceral power to these objections. If the cloning dilemma had developed prior to *Roe v. Wade*,¹⁸⁷ there is little doubt that the opponents of cloning would have prevailed in the courts, including the Supreme Court. There was a long history of legal recognition and protection of unborn human life under the common law.¹⁸⁸ Modern criminal law and tort law also accommodated the interests of the state in the protection of pre-birth humans.¹⁸⁹ But the lens through which the judiciary views inchoate human life has been radically altered since *Roe*. The courts have accepted, and indeed ensured, the legality of millions of abortions annually, with myriad embryos and fetuses intentionally eliminated at all stages of gestation, under all circumstances, and for any and all reasons.¹⁹⁰ The process of in vitro fertilization is also now well-established¹⁹¹ and is afforded the full compliment of legal protections, notwithstanding the

¹⁸⁷ *Roe v. Wade*, 410 U.S. 113 (1973).

¹⁸⁸ See Forsythe, *supra* note 81, at 485-94.

¹⁸⁹ *Id.* at 494-513.

¹⁹⁰ *Planned Parenthood v. Casey*, 505 U.S. 833 (1992); *Roe*, 410 U.S. at 113. See also cases cited *infra* notes 207-10.

¹⁹¹ In vitro fertilization has become commonplace, despite the onerous expenses and inefficiencies involved. See Lawton, *supra* note 12, at 328 (indicating it may cost from \$40,000 to \$200,000 to have a child using IVF technology); ROBERTSON, *supra* note 139, at 100, 116 (mentioning that thousands of IVF attempts are performed every year, and some states require health insurers to cover IVF).

significant numbers of unsuccessful attempts to bring about a healthy baby and the frequency with which embryos are discarded.¹⁹²

There has not been a surfeit of restrictive legislation or regulation pertaining to in vitro fertilization,¹⁹³ despite some moral and religious objections.¹⁹⁴ No state has banned it,¹⁹⁵ and the legal measures that are in effect generally require only data collection, certification of practitioners and facilities, and the provision for informed consent.¹⁹⁶ The parallels with cloning are both obvious and significant.¹⁹⁷ Some critics initially predicted that in vitro fertilization would result in the mass-production of infants.¹⁹⁸ Public outrage at the dawn of in vitro fertilization was extreme, at least in some quarters, and dire consequences were prophesied.¹⁹⁹ In the early years, legal commentators decried the technology and urged restrictions.²⁰⁰ Yet, as the reality juggernaut inexorably encroached on speculation, the law has actually moved to protect and foster the use of in vitro fertilization, primarily because it has been demonstrably successful and a boon to infertile couples and individuals.²⁰¹

Realistically, it is highly unlikely that the cloning of humans would be attempted by most medical professionals, nor would people want to try it

¹⁹² See Laurence H. Tribe, *Second Thoughts on Cloning*, N.Y. TIMES, Dec. 5, 1997, at A31 (maintaining that the scientific community regards cloning as an "incremental step beyond what we are already doing with artificial insemination, in vitro fertilization, fertility enhancing drugs and genetic manipulation").

¹⁹³ See JANET L. DOLGIN, *DEFINING THE FAMILY: LAW, TECHNOLOGY, AND REPRODUCTION IN AN UNEASY AGE* 62 (1997); Roger J. Chin, *Assisted Reproductive Technologies: Legal Issues in Procreation*, 8 LOY. CONSUMER L. REV. 190, 197 (1996).

¹⁹⁴ See Roberto Suro, *Vatican Asks Governments to Curb Birth Technology and to Outlaw Surrogates: Transfer of Embryos and Artificial Fertilization Largely Opposed*, N.Y. TIMES, Mar. 11, 1987, at A1.

¹⁹⁵ See Note, *supra* note 86, at 2361.

¹⁹⁶ See Judith F. Daar, *Regulating Reproductive Technologies: Panacea or Paper Tiger?*, 34 HOUS. L. REV. 609, 641-51 (1997).

¹⁹⁷ See Katz, *supra* note 10, at 14 (concluding that cloning is not as revolutionary as feared and is arguably "more deserving of protection as a means of reproduction than many other techniques").

¹⁹⁸ See *A Rush of Test-Tube Babies Ahead?*, U.S. NEWS & WORLD REP., Aug. 7, 1978, at 22.

¹⁹⁹ See Wu, *supra* note 127, at 1512-13 (citing sources denouncing IVF as "startling as the atomic bomb").

²⁰⁰ See ELIZABETH BARTHOLET, *FAMILY BONDS: ADOPTION AND THE POLITICS OF PARENTING* 212 (1993); Note, *Reproductive Technology and the Procreation Rights of the Unmarried*, 98 HARV. L. REV. 669, 669-70 (1985).

²⁰¹ See DOLGIN, *supra* note 193, at 9; Chin, *supra* note 193, at 194-99.

as a form of assisted reproduction, until the technology has moved beyond the stage of high failure rates and abnormal births, with or without legislation restricting the practice. It would be prohibitively expensive and ethically dubious to persist in efforts to clone people unless additional experiments involving animals, especially higher primates, dramatically improved the probability of a normal, live birth. On the pragmatic level, cloning would need to attain something approaching the success rate of in vitro fertilization before it becomes a real option, both for would-be parents and for the medical and technological professionals involved. The process would be self-regulating to a significant degree. If legislation were narrowly tailored to regulate human reproductive cloning and/or research, perhaps with a very short-term temporary ban until the requisite progress is achieved through non-human research, there could be a legitimate judicial imprimatur as well.

Potentially, courts might draw a distinction between "casualties" unavoidably incurred in the process of cloning a human being under the naked clone situation and cloned embryos intentionally created and "harvested" for the express purpose of scientific/medical research. The naked clone position is buttressed by powerful additional constitutional rights not available in the research setting, and this might justify greater judicial deference to the former than the latter. Restrictions and regulations, although probably not an outright permanent ban, could be tolerated in the research setting, while cloning for reproduction would be much more fully protected. However, in light of the analogous collateral loss of human embryos during in vitro fertilization experiments and actual in vitro fertilization attempts to reproduce and the many millions of pre-natal fetuses and embryos deliberately destroyed through various forms of abortion,²⁰² it is possible that courts would not find an outcome-determinative distinction between the two. We have blazed a path that may lead to even large-scale, intentional sacrifice of research-only cloned human embryos, and a fortiori the unintentional loss of embryos associated with the presumed low success rate of live-birth directed cloning efforts.

²⁰² The Centers for Disease Control statistics indicate that the number of legal abortions performed annually in the United States was consistently well above one million per year from 1980 through 1997. See Centers for Disease Control and Prevention, *Abortion Rates Decline* (Jan. 7, 2000), at <http://www.infoplease.com/ipa/A0764203.html>. For example, in 1996, there were an estimated 1.3 million induced abortions in this country. See National Center for Health Statistics, *U.S. Pregnancy Rate Lowest in Two Decades*, Dec. 15, 1999, at <http://www.cdc.gov/nchs/releases/99facts/pregrate.htm>.

D. The Role of Love in Tying Together the Doctrinal Strands

The Article returns to reproductive cloning and leaves aside the somewhat less robust, but still formidable, case in favor of some level of constitutional protection for clonal research involving humans. Even if only one viable infant is produced from 277 enucleated eggs, as in the case of Dolly,²⁰³ there is no principled legal reason under the established jurisprudence to use a low success rate to uphold a permanent and total ban on the cloning of humans. Short-term regulation and limitation linked to success rate, not blanket and unending prohibition, is the most that the courts should uphold.²⁰⁴ The same is true regarding the prospect that cloning of humans, at least until the process is improved, may cause significant numbers of babies to be born with grotesque deformities, gigantism, and a very short lifespan. We crossed, and burned, that bridge long ago. It is proper and constitutionally defensible for Congress to enact legislation that places health and safety restrictions on cloning, perhaps even a temporary, self-expiring moratorium, pending evidence of sufficient scientific and technological progress. But the debate thus far has been dominated less by

²⁰³ In later SCNT experiments involving mice, the results have been somewhat better, although still not approaching a high success rate. One experiment resulted in ten mice surviving from 800 embryos transferred, and a subsequent trial yielded five mice surviving from 298 embryos. See T. Wakayama et al., *Full-term Development of Mice From Enucleated Oocytes Injected with Cumulus Cell Nuclei*, 394 NATURE 369, 371 (1998). Even more encouraging, recent work involving cows has found that cloned cows are as healthy as their conventionally-bred counterparts, and researchers have claimed an eighty percent success rate among those cows that survived gestation, although many embryos were spontaneously aborted during gestation. See Whitfield, *supra* note 24; Robert P. Lanza et al., *Cloned Cattle Can Be Healthy and Normal*, 294 SCIENCE 1893-94 (2001). With the successful cloning of a calico cat named "CC" (for "Copy Cat") by a Texas company named Genetic Savings and Clone in late 2001, the number of mammalian species cloned through SCNT reached six: sheep, mice, cattle, goats, pigs, and cats. It is interesting to note that "CC" did not have the same physical appearance as the DNA donor cat, because of post-fertilization factors that contribute to phenotypic expression. Rick Weiss, *Copy Cat is First Cloned Pet*, WASH. POST, Feb. 15, 2002, at A1.

²⁰⁴ There is reason to believe that "improvements in animal cloning indicate that safety concerns may be only a temporary barrier to reproductive [use of cloning] in humans." See Ethics Committee Report of the American Society for Reproductive Medicine, *Human Somatic Cell Nuclear Transfer (Cloning)*, 74 FERTILITY & STERILITY 873 (2000).

such legitimate short-term concerns than by unending, unfounded prejudice and ignorance.

The same penumbras and emanations that have been divined by the Supreme Court in the context of abortion rights must also embrace the naked clone. Indeed, there is a stronger public policy rationale buttressing the naked clone situation, in that its aim is the propagation of human life. As crucially important as a person's privacy rights and personal autonomy are, the naked clone scenario presents an even more satisfying final outcome: a loved and wanted living child, rather than an aborted fetus or embryo. While abortion rights safeguard a woman's right *not* to reproduce, the naked clone represents a woman's (and man's) right *to* reproduce. The jurisprudence that recognized the former must necessarily and at least as vigorously support the latter.²⁰⁵

It is not the strength of the doctrinal foundation underlying the abortion decisions that guarantees the naked clone rights, but its fragility. The Court, often by the narrowest of majorities, has been unwilling to concede the existence of several rather minor and specialized limitations on abortion rights because of concern that the exceptions would expose the brittle doctrinal and historical support²⁰⁶ for abortion rights in general and undermine the entire structure. The same premonitions that led the Court to invalidate laws requiring parental consent for abortions sought by their unemancipated minor children,²⁰⁷ providing that second-trimester abortions

²⁰⁵ See *Lifchez v. Hartigan*, 735 F. Supp. 1361, 1376-77 (N.D. Ill.), *aff'd mem.*, 914 F.2d 260 (7th Cir. 1990). The case involved an infertile couple's efforts to avail themselves of medically-assisted reproduction, including the use of a donated embryo and in vitro fertilization. The district court held that an Illinois law banning embryo and fetal research and prohibiting embryo donation, embryo freezing, and experimental prenatal diagnostic procedures was impermissibly vague and an unacceptable infringement on a woman's fundamental right to privacy. The court stated, "It takes no great leap of logic to see that within the cluster of constitutionally protected choices that includes the right to have access to contraceptives, there must be included within that cluster the right to submit to a medical procedure that may bring about, rather than prevent, pregnancy." *Id.* See also *Lindley v. Sullivan*, 889 F.2d 124, 130 (7th Cir. 1989) (opining that there is a fundamental interest in having children, citing *Eisenstadt v. Baird*, 405 U.S. 438 (1972), and other cases); *Cameron v. Bd. of Educ.*, 795 F. Supp. 228, 236-37 (S.D. Ohio 1991) (citing *Eisenstadt* and *Cleveland Bd. of Educ. v. LaFleur*, 414 U.S. 632 (1974), in support of a holding that a single woman has a fundamental "constitutional privacy right to . . . become pregnant by artificial insemination").

²⁰⁶ See David Kader, *The Law of Tortious Prenatal Death Since Roe v. Wade*, 45 MO. L. REV. 639, 652-53 (1980).

²⁰⁷ *Planned Parenthood of Cent. Mo. v. Danforth*, 428 U.S. 52 (1976).

take place only in hospitals,²⁰⁸ mandating parental notification that their unemancipated minor children are seeking an abortion,²⁰⁹ or restricting partial-birth abortions,²¹⁰ would drive the Court to strike down legislation banning the cloning of humans in the naked clone situation. Any judicial approval of a legitimate, even compelling governmental interest in preventing the destruction and exploitation of inchoate human life in the cloning context readily could be turned against abortion rights in the next case.

Although some commentators have argued that abortion rights are in a class by themselves, with similar legal support unavailable to cloning, this is unpersuasive. While it is true that some cases contain language identifying abortion as distinct from some other issues,²¹¹ this is an artifact of the subtext that acknowledges the fundamental weakness of the constitutional underpinnings of the abortion rights.²¹² The line of abortion cases does not stand for the principle that the practice of abortion is inherently noble or good. On the contrary, the abortion jurisprudence rests on the more foundational precept that a woman has the right to make her own decisions as to whether to reproduce or to carry to term a fetus within her body, not that the law must favor abortion over birth. The inventive and highly controversial judicial reasoning that led to the creation of abortion rights

²⁰⁸ *Akron v. Akron Ctr. for Reproductive Health, Inc.*, 462 U.S. 416 (1983).

²⁰⁹ *Hodgson v. Minnesota*, 497 U.S. 417 (1990).

²¹⁰ *Stenberg v. Carhart*, 530 U.S. 914 (2000).

²¹¹ Abortion has been described as "inherently different from marital intimacy, or bedroom possession of obscene material, or marriage, or procreation, or education, with which *Eisenstadt* and *Griswold*, *Stanley*, *Loving*, *Skinner*, and *Pierce* and *Meyer* were respectively concerned." *Roe v. Wade*, 410 U.S. 113, 159 (1973). It also has been described as "a unique act." *Planned Parenthood of S.E. Penn. v. Casey*, 505 U.S. 833, 852 (1992). These statements are literally true, but can hardly support a suggestion that abortion is a right exalted above all others or utterly beyond comparison.

²¹² *Planned Parenthood*, 505 U.S. at 833. The four dissenting justices argued that "Roe was wrongly decided" and "should be overruled." *Id.* at 844. Chief Justice Rehnquist declared that the decision to abort is "different in kind" from other recognized privacy rights such as those involving contraception and procreation because abortion "necessarily involves the destruction of a fetus." *Id.* at 952 (Rehnquist, C.J., concurring in part and dissenting in part) (citations omitted). Justice Scalia's opinion asseverated that "the best the Court can do to explain how it is that the word 'liberty' *must* be thought to include the right to destroy human fetuses is to rattle off a collection of adjectives that simply decorate a value judgment and conceal a political choice." *Id.* at 983 (Scalia, J., concurring in part and dissenting in part).

and the invalidation of dozens of anti-abortion statutes in the states has survived intense legal and political criticism from the outset, not because abortion is a palpable public or private virtue, but because it implicates other virtues that are central to human rights. Those virtues—the liberty of free, autonomous individuals to decide whether to have children, the privacy rights that prevent the government from restricting or dictating reproductive options, the personal autonomy and dominion over procreative processes taking place within a woman's own body—are abundantly manifested in the case of cloning, at least as much as within the abortion context.²¹³

The creation and exploitation of human clone embryos solely for research purposes is a closer case, but here, too, modern jurisprudence favors only limited regulation, not an outright ban. A blanket and total prohibition such as set forth in the HCPA is probably violative of First Amendment rights. It would be more appropriate to regulate cloning-related research in a manner consistent with other federal restrictions on biomedical research involving human subjects. Requirements for researchers to submit proposals to expert panels prior to conducting studies, with federal guidelines used to assess the proposals, are well-established and available.²¹⁴ Additionally, when the researchers are the recipients of federal funding, there is a risk-benefit analysis, a requirement of informed consent, and protections for vulnerable populations.²¹⁵

It is interesting and ironic, in light of the foregoing analysis that there are some indications that Congress might opt to ban reproductive cloning entirely and permanently, but permit therapeutic cloning under some circumstances.²¹⁶ If anything, the established jurisprudence more firmly

²¹³ Indeed, there are important cases recognizing a privacy right or related fundamental rights in personal autonomy contexts quite distinct from either abortion or contraception. *See, e.g., Meyer v. Nebraska*, 262 U.S. 390 (1923) (upholding parental autonomy in choosing a mode of education for their children); *Pierce v. Soc'y of Sisters*, 268 U.S. 510 (1925) (same); *Loving v. Virginia*, 388 U.S. 1 (1967) (holding that the right to interracial marriage is a fundamental right); *Moore v. City of East Cleveland*, 431 U.S. 494 (1977) (protecting the right of the family to determine its own living arrangements); and *Zablocki v. Redhail*, 434 U.S. 374 (1978) (recognizing the right to marry as a fundamental right).

²¹⁴ *See* Henry T. Greely, *The Control of Genetic Research: Involving the "Groups Between,"* 33 HOUS. L. REV. 1397, 1399 (1997).

²¹⁵ *Id.* at 1401-02.

²¹⁶ *See* Wesley J. Smith, *Close the Door on Cloning*, NAT'L REV. ONLINE, Jan. 14, 2002, at <http://www.nationalreview.com/comment/comment-smith011402.shtml>.

embraces and protects reproductive cloning than it does therapeutic cloning. The naked clone scenario, which brings the world a new living baby, should properly be viewed as constitutionally secured, more so than a laboratory procedure that produces, subjects to experimentation, and then discards cloned human embryos solely for utilitarian purposes of scientific/medical research. Yet such is the degraded quality of the public debate on cloning that the United States Senate is seriously considering the exact opposite approach.²¹⁷

One final, rather remote, possibility deserves mention. Some people might want to use cloning to produce viable human embryos or infants, but with no intention of rearing them. This presumably would be a rare situation, one that includes certain of the more objectionable scenarios posited by the opponents of cloning. If someone engages in cloning, and then sells the embryos to others to gestate or pays others to gestate the embryos, and the babies are eventually brought up by others, it is likely that reasons beyond many or all of the usual reasons for having children are fueling the process.²¹⁸ There could be a compelling governmental interest in regulating or banning cloning under these circumstances, owing to the unconventional motivations at work and the dissevering of embryo formation, gestation, and rearing. Legal intervention to prevent nefarious forms of cloning is entirely proper, as it has been when it has also proscribed the selling of children, infanticide, enslavement of children, child abuse and neglect, child pornography, and other evils that touch on reproductive liberties and the rights to have and rear children. It is where cloning would take place for worthy reasons harmonious with or indistinguishable from those that always have motivated people to have children—the naked clone situation—that the law should not pose an obstacle.

The debate concerning the cloning of humans has swirled around wildly, with far-fetched horror-story monstrosities crowding out sound science and common sense. The mad dance of the horribles has also obscured a key factor that truly resides at the heart of the matter, both literally and figuratively: love. Love is a word that those who would outlaw cloning with a sweeping ban rarely mention, but it is actually the most important part of the entire issue. Among all the reasons why people might want to have children, including children of cloning, love is paramount.

²¹⁷ *Id.* The House of Representatives and President Bush, of course, both favor total bans on the cloning of humans for any purpose whatsoever. See Weiss, *Mass. Firm's Disclosure*, *supra* note 6.

²¹⁸ See Robertson, *supra* note 87, at 1398-99.

Cloning calls to mind the legend of Brigadoon, as immortalized in the musical play by Alan Jay Lerner and Frederick Loewe. In the play, a remarkable little village only comes to life and becomes accessible to outsiders for a single day every one hundred years. After that one day, Brigadoon and everyone in it vanishes again for another century. A visitor can only remain in Brigadoon if he or she loves someone within it very much, because "when ye love some one deeply, anythin' is possible . . . Even miracles."²¹⁹ So too, with cloning, there are people for whom the dream of having children through their own biological processes has been an impossible dream, mostly out of sight and out of mind for virtually everyone but those directly affected. Now, with the intervention of modern science, there is a window about to open that might make the dream come true for some people. Those who would ban all cloning of human beings permanently are on the verge of slamming and locking the window and closing the shutters, blocking out the sunlight and bringing about the end of the day. If we care enough about these would-be parents and the children they could nurture, there may yet be a way to prevent their dreams from disappearing. Cloning, in the real world, would not be a horror story, but a love story, made possible through the miracle of scientific advancement. As in Brigadoon, with sufficient love, even miracles are possible.

VII. CONCLUSION

Fear and misunderstanding have spawned extreme, and extremely vocal, opposition to the cloning of human beings. This opposition has taken root in the form of several highly restrictive state laws and threatens to become a federal ban as well. Notably, cloning is properly viewed as one more form of human reproduction, both different from the others and also similar.

Modern advances in the science and technology of cloning have produced some startling headlines and emotional reactions, as successes of varying degrees have been reported in cloning sheep, mice, and cows. More than all the other examples, the recent announcement of the first tentative, limited breakthrough in cloning a human being ignited a firestorm of denunciations and vows to ban such cloning permanently, under all circumstances and for all purposes. Two Presidents of the United States, the Pope, numerous senators and members of Congress of both major political parties, and hosts of world leaders have spoken with virtually one voice in decrying the cloning of humans, irrespective of the motives of those involved and the potential benefits that could be realized. But, as

²¹⁹ FREDRICK LOEWE, *BRIGADOON* act II, finale (1948).

Clarence Darrow noted in his immortal closing argument in the *Leopold and Loeb* trial, when the people speak with one voice it is often out of "pure prejudice," and a demand for killing, rather than love and mercy.²²⁰ Darrow was arguing against the death penalty in a case in which it seemed all the world was united in clamoring for the execution of his two young defendants. The point he made there is fully applicable in the naked clone context decades later: Unanimity of public opinion does not equate to justice. Most often, it is a sign of rampant prejudice.

Much of the intense animosity has been on the level of unfounded fear, science fiction fantasy, moralistic bias, and slippery slope prognostications. Opponents of cloning imagine a horror-story world in which mad scientists and evil geniuses mass-produce hordes of identical warriors, slaves, or monsters ready to effectuate their malevolent purposes. They see cloning as the doorway to a world in which human beings are reduced to mere commodities, their vital organs forcibly harvested from them for profit or the personal benefit of their master. They predict a world where people clone themselves and others, in conjunction with genetic engineering, to create legions of designer offspring, made to specification like, and treated like products, not people. But this world does not exist and could not exist, even in the absence of any legislation regulating or banning cloning. These specters of doom are either scientifically impossible, already illegal, or both.

A frequently cited attack on cloning is entitled *The Wisdom of Repugnance*.²²¹ The unintentional irony of that title perfectly summarizes the deeply flawed reasoning that usually has been proffered in opposition to the cloning of humans. Repugnance is endowed with no inherent wisdom. On the contrary, when we feel an inexplicable, ill-defined loathing for someone or something, divorced from reason and rationality, that revulsion is not wisdom, but prejudice. We may concede that people have a common tendency to hate without reason, and a powerful urge to destroy that which, through misunderstanding, is hated. Again, this human penchant to demonize and demolish the unknowns that frighten us is not wisdom to be celebrated. It is unarticulated, baseless fear and hatred, and we should seek to overcome it, not to enshrine it.

Cloning is utterly incapable of mass-producing people, as are in vitro fertilization, artificial insemination, and all the other modern forms of assisted reproduction. In fact, this Article has noted several ways in which cloning could be both physically safer and legally less problematic than some other well-established modes of reproduction. Moreover, the reasons

²²⁰ See ATTORNEY FOR THE DAMNED: CLARENCE DARROW IN HIS OWN WORDS 20, 85-86 (Arthur Weinberg ed., 1957).

²²¹ See Kass, *supra* note 80.

why individuals might want to use cloning are very consonant with the reasons people have always chosen to have children, throughout the world's history. Cloning, like all other types of latter-day assisted reproduction, is at its core a process that results in the birth of a baby, who, by virtue of an array of environmental and developmental factors, would grow up to be a unique individual, a fully human being.

This is reproduction, not replication. Genetics are not everything; differing environments produce different people, even among identical twins. When people are cloned, they would be genetically *less* similar than identical twins, because they have different mitochondrial DNA. They would also experience, and be shaped by, quite divergent environmental influences, beginning within the mother's uterus and extending through all the formative years in the familial milieu. They each would be distinct and unique, and entitled to all human rights.

The overwhelming majority of people who would endure the great expense and effort to have a child through cloning would do so for much the same reasons people have babies through coital reproduction, in vitro fertilization, artificial insemination, and surrogacy—and those reasons have, as their epicenter, love.

This Article has posited the naked clone situation to describe those instances in which people earnestly desire to have a child and choose, for their own very personal reasons, to use cloning to realize their dream, and yet find the legal system standing as a barricade in their path. The anti-cloning laws single out and ban the cloning choice while other modes of human reproduction and family building remain legal, respectable, honorable, and even hallowed. Contemporary jurisprudence accommodates traditional procreation, adoption, foster parenting, in vitro fertilization, and the use of various forms of surrogacy. But the anti-cloning laws would, without justification, leave the naked clone in an unprotected class of one.

We mentioned Clarence Darrow's renowned closing argument in *Leopold and Loeb* and its resonance now, decades later, in a very different context. It is fitting to conclude this Article as Clarence Darrow ended his ultimately triumphant plea for the lives of his young clients, by quoting from *The Rubiyat of Omar Khayyam*:

So I be written in the Book of Love,
I do not care about that Book above;
Erase my name or write it as you will,
So I be written in the Book of Love.²²²

²²² See *supra* note 220, at 87. The meaning of the verse is essentially that it is more important to devote oneself to love here on earth in this lifetime than to be preoccupied with any heavenly ledger in which the names of people entitled to an

We have seen that sweeping anti-cloning laws are inconsistent with Supreme Court precedent recognizing a fundamental right to have children, as well as the cases acknowledging a constitutional right to privacy and personal autonomy. Even within the context of therapeutic cloning for purposes of medical or scientific research, the bans may fail to withstand judicial scrutiny as an impermissible infringement on First Amendment rights of free expression and inquiry.

Reproductive cloning clearly implicates fundamental rights—the right of couples and individuals to bear and beget children, and to be free from governmental intrusion in matters involving intensely personal decisions regarding the creation of new life. Cases finding fundamental rights to marry, educate our children, use contraceptives, and abort, also support the general right to make our own reproductive choices. Thus, the naked clone situation implicates fundamental rights—the right of couples and individuals to bear and beget children, and to be free from governmental intrusion in matters involving intensely personal decisions regarding the creation of new life. Encroachment on such rights invokes strict scrutiny by the judiciary, and the arguments arrayed against cloning fail to constitute the requisite compelling governmental interest, whether in isolation or in the aggregate. And certainly, any sweeping, permanent ban is not narrowly tailored to achieve whatever governmental interest might exist.

A better approach would be to regulate, not to ban. Constitutionally sound regulation would provide safeguards, require demonstrably adequate success rates, and healthy offspring in animal tests before allowing full-scale reproductive human cloning. Powerful incentives already exist—both financial and emotional—to proceed with caution and prudence. These incentives are in place, independent of any legislation, because reasonable, rational people will not spend huge sums of money to subject themselves and their children to formidable physical risks. If at all, legislation is only advisable to address those few anomalous cases that might result in premature and irresponsible cloning initiatives.²²³

eternal reward are recorded. The verse may be read as implying that the successful pursuit of the former necessarily leads toward the latter as well.

²²³ One such example is arguably Clonaid, which self-identifies as “the first human cloning company.” Clonaid was founded in February 1997 by a person known only as Raël. Raël is the leader of the Raelian Movement, an international religious organization which claims that life on Earth was created scientifically through genetic engineering by a human extraterrestrial race named Elohim. The Raelian Movement also claims that Jesus was resurrected through an advanced cloning technique the Elohim performed. The movement seeks to use Clonaid to clone human beings as soon as possible, with a view toward attaining eternal life.

People have always feared the unknown and resisted the unfamiliar. During its early years, in vitro fertilization also was the target of bitter attacks and predictions of disaster. It has now become virtually commonplace, and the world still turns on its axis. Despite all the sensationalist films and novels, cloning is not an evil force from a hostile planet. It is one more in a series of new opportunities made possible by the best that science has to offer: the chance for people to have children of their own, where before there was no chance, only an impossible dream.

For more information on Clonaid, see Clonaid Homepage, at www.clonaid.com (last visited June 11, 2002). See also Weiss, *First Human Embryos*, *supra* note 5 (mentioning an announcement that Clonaid succeeded in preliminary experiments on cloning humans).

